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National Veterinary Medical Association

PRESIDENT'S NEW YEAR MESSAGE TO MEMBERS

I WELCOME the opportunity afforded to me by the Editorial Committee to send to all members of the "National" my sincere and cordial good wishes that they may have a very happy and prosperous New Year. At this time, it is both a pleasure and a pride to remember that the "National" has many affiliated societies in our Dominions and Colonies, to the members of which I would send my special greetings.

In many ways the year which is past has been one of steady progress for the Veterinary Profession. Whilst international relationships have been strained and have given cause for anxiety, one is justified in claiming that within our profession there has been an ever-growing spirit of goodwill and tolerance. The Veterinary Profession is passing through critical years, and there was never a time when it was more essential that the profession should be efficiently and thoroughly organised to withstand adverse influences. At the Congress Banquet of the Association held at Scarborough, one of the speakers spoke very eloquently about "good companionship." I sincerely hope that this spirit of good companionship which grew so vigorously in the bracing air of Scarborough during Congress Week, will continue to grow and to flourish in the profession not only during my year of office but throughout the years to come.

The year which has passed will long be memorable for the crisis which led up to the withdrawal from the Throne of His Majesty King Edward VIII, the Patron of our Association and an Honorary Associate. In spite of the shock and distress caused by his abdication, the mind of the nation appears to be turning hopefully to the future, and in 1937 we shall be celebrating the Coronation of his successor, His Majesty King George VI. I hope that a special effort will be made to signalise this important event, so far as our Association is concerned, by an increase not only in our unity but in our membership. I am confident that, with such an effort, it ought to be possible to exceed the 2,000 mark in Coronation year, and thus make the year 1937 a definite milestone in the Association's history.

The Congress in the Coronation year is due to be held at Bournemouth, and my wife and I sincerely hope that we shall have the opportunity of welcoming a record gathering of members of the Association and their friends.

During the past year the "National" has actively pursued its policy of safeguarding and consolidating the interests of its members. There have been occasional setbacks, and recently the profession has been exposed to some unfair criticism, but these incidents need not depress us for the future, particularly when there is every indication that, amongst the general public and in public health and agricultural circles, the services which our profession can render to the nation are becoming more and more widely appreciated.

I feel that there is no reason why the profession should not look forward to 1937 with optimism, and with quiet confidence. It is my earnest hope that the New Year will bring prosperity, health and happiness to all members of the Association.

R. SIMPSON,
President.

Carlisle.

January 1st, 1937.

Some Observations on the Incidence, Causes and Treatment of Bone Fractures in the Dog*

J. G. WRIGHT, F.R.C.V.S.
Royal Veterinary College, London

This communication comprises a short review of the cases of bone fracture in the dog attended in the Beaumont Animals' Hospital of the Royal Veterinary College during the 20 months ending October, 1936. It is thought that it gives a fairly comprehensive indication of the subject as it is encountered by those engaged in small-animal practice. The animals treated were, in the great majority of cases, the pets of poor persons, and thus the somewhat specialised fractures which occur in the racing greyhound are not included.

The most important cause of fractures in the dog is traumatic injury, either direct or indirect. Whilst constitutional factors such as vitamin and/or mineral deficiency may play a predisposing part in the dog as they do in man, they are sufficiently rare to be unimportant from a surgical viewpoint. Powerful muscle contraction is accepted as a cause of bone fracture, particularly of small bones such as the patella. This also must be a very rare cause in the dog.

The exciting causes may be roughly divided under two headings:—

(*a*) Gross direct external violence.

(*b*) Much less severe, and often indirect, violence.

In the first group street accidents form by far the commonest cause, in fact, of the 221 cases under review 117 (53 per cent.) resulted from animals being crushed or struck by vehicles: in the majority of cases motor vehicles, but in a few, bicycles. From Table I it will be seen that the radius and ulna are the bones most often involved, followed closely by the femur and the tibia.

Other forms of gross external injury are: crushing by heavy objects, falls from heights, colliding with objects at speed, dog fights. These, however, are responsible for comparatively few cases only: in this series, 24 (11 per cent.).

In the majority of cases the fracture is complete, sometimes comminuted or even compound, whilst occasionally several bones are involved. There is generally considerable displacement of the fragments and soft tissue injury in addition.

The second group is of greater interest, for in these the cause was generally indirect violence of slight severity: a simple slip or fall whilst at play; a fall from a chair or the owner's arms—a force which the bone would probably have withstood had the muscles associated with it been co-ordinated. Of the series, 68 (30 per cent.) come under this heading. The tibia is the bone most often involved, followed closely by the radius and ulna, and the femur. When dealing with the femur it will be noticed that the neck is as often involved as the shaft. In many cases the fracture is subperiosteal or epiphyseal.

Table I.

Bone.	No.	Causes.			
		Street accidents.	Other gross injuries.	Simple falls, etc.	Unknown.
Radius and Ulna ...	63	34	6	20	4
Femur ...	56	29	7	16	4
Tibia	39	11	3	23	2
Pelvis... ...	20	19	1	—	—
Humerus ...	13	10	1	2	—
Metacarpus and Metatarsus	13	3	3	5	2
Tarsus ...	7	2	2	2	1
Mandible ...	2	1	1	—	—
Scapula ...	3	3	—	—	—
Ribs	2	2	—	—	—
Spine... ...	3	3	—	—	—
	221	117	24	68	13

Age Incidence.—Fractures due to street accidents may involve animals of any age. In this series 70 per cent. occurred in animals under one year of age, and 30 per cent. in

Table II.

Age Incidence.

Bone.	Street accidents.			Simple falls.		
	No.	Under 1 year.	Adults.	No.	Under 1 year.	Adults.
Radius and Ulna ...	32	20	12	20	19	1
Tibia ...	11	8	3	23	18	5
Femur—						
Neck ...	12	10	2	8	8	—
Shaft ...	8	5	3	4	3	1
L. third	9	8	1	4	4	—
Humerus...	10	5	5	2	2	—
Pelvis ...	19	13	6	—	—	—

*Presidential Address to the Central Veterinary Society, at the Conway Hall, London, December 3rd, 1936.

adults. The dog which is allowed to roam the highways, particularly in cities, soon acquires considerable experience in avoiding vehicles, providing it is fortunate enough to survive its early days. The fracture due to a simple fall is essentially a disease of the immature animal in which ossification is not yet complete. In this series 90 per cent. occurred in puppies under nine months old, whilst 10 per cent. only were in adults. Of these, 50 per cent. were subperiosteal.

Simple accidents in the adult dog are much more likely to result in a sprained joint. In the fore-limb the shoulder and carpus are the common sites, in the hind-limb—the stifle. The humerus is a bone which may be fractured very simply in mature animals, especially in short-legged breeds. There are many cases on record of spaniels breaking a humerus as the result of stumbling. In this series a five-year-old Cocker spaniel male fractured the shafts of both humeri as the result of jumping through a ground-floor window whilst in an attack of hysteria (case seen through the courtesy of Messrs. L. P. Pugh and J. Bruford). Injuries to the hip should be reviewed from the point of view of age incidence. In the mature dog a severe hip injury is most likely to result in luxation, whereas in the puppy under nine months old fracture of the neck of the femur is much more common. In this series 21 cases of luxation were seen, of which 17 occurred in adult dogs, and four in animals between six months and one year old, none in animals under six months.

Complications.—The most common complication is that the fracture involves an articular surface. This is most often seen in connection with fractures of the upper extremity of the radius and of the lower end of the humerus—the elbow; also at the lower end of the femur and involving the femoro-patellar articulation. Most fractures of the small bones of the hock and carpus involve the articulation. There may be partial or complete luxation in addition. My experience of such cases has been that there is a tendency for a chronic arthritis with severe lameness to ensue, rather than obliteration of the joint by anchylosis, although two cases of complete fixation of the stifle joint have been met. In epiphyseal fractures, especially if they are untreated, large deposits of bone callus may cause marked and permanent interference with the function of a joint.

Veins are frequently lacerated and marked extravasation, with haematoma formation, occurs. The commonest is the femoral, due to fracture of the shaft of the femur with displacement. It is generally followed by temporary oedema of the lower part of the limb, but provided that the fracture is simple (closed), the complication is not serious and absorption rapidly occurs. Fortunately large arteries seldom receive injury from fractured bone fragments. Of the nerves injured in the dog the musculo-spiral is the commonest. Extensor paralysis of a fore-limb, generally permanent, may accompany fracture of the neck of the scapula or of the shaft of the humerus. In this series four such cases occurred. Gross fractures of the pelvis may be accompanied by paraplegia due to displacement of the sacrum. A surprising feature is the comparative rarity of obturator paralysis considering the frequency with which fracture of the floor of the pelvis is met. Three cases of fracture of the vertebral column were encountered. All were the result of street accidents and were associated with extensive motor and sensory paralysis. The first (seen through the courtesy of Mr. H. C. P. King) involved the odontoid process of the atlas, and the second the centrum of the sixth lumbar. These cases were destroyed immediately. In the third, which involved the axis, the subject was a six-months-old terrier, male, and the cause crushing by a motor vehicle. There was complete fracture of the centrum, arch and spine of the axis with angular displacement. The onset of paralysis was delayed for 24 hours after the accident, but by the forty-eighth hour there was almost complete motor paralysis. By the 18th day but for a little inco-ordination when the animal moved suddenly, recovery was complete. [I would pay tribute to the unremitting care and attention paid to the nursing and feeding of this animal by Miss L. H. Phillips and Mr. K. D. MacOwan, final year students of the College.]

One rather remarkable complication was as follows. The subject was an adult Alsatian bitch, and the history that since a street accident four months previously she had become progressively thinner and thinner and was now emaciated. *Post-mortem* examination revealed a healed fracture of the eleventh rib on the right side. It would appear that the upper segment had, at the time of the accident, pierced the edge of the diaphragm. Through this orifice, the size of a sixpenny piece, the whole of the jejunum had "worked" its way into the right chest.

Considering the gross nature of the injury in street accident cases, it is surprising that compound (open) fractures are not more common. An interesting compound fracture is one which involves the tibia. The fracture is oblique shaft, and the skin becomes lacerated from within rather than without, the pointed end of the upper fragment being forced through the skin on the inner aspect of the leg. A similar fracture occasionally involves the radius.

Whilst this paper is concerned primarily with fractures and complications directly associated with the broken bone, it should always be borne

in mind when considering a case of gross injury that some vital soft tissue may be damaged. Attention is directed to the following: rupture of the diaphragm, ventral rupture, rupture of the mesentery, liver, bladder, bowel, kidney; whilst one case of rupture of the gravid uterus has been seen. Rib fractures may cause laceration of a lung.

Diagnosis.—It is not my intention to deal at any length with the more obvious signs and symptoms of fractures, such as inability to support weight, excessive mobility, deformity, crepitus, etc., for the diagnosis of complete fractures of long bones should present no difficulties. It is to subperiosteal, epiphyseal fractures, and fractures such as of the neck of the scapula and femur to which attention is directed. It is my view that the great majority of cases of severe lameness caused by injuries, are due to lesions of bones or joints, and care should be taken not to dismiss a case with the diagnosis of "sprain" until a very careful examination has been carried out. Subperiosteal fractures of the radius and ulna in puppies are especially liable to be overlooked, and a common outcome is that seven days or so later, as the result of weight being put on the limb, severe bending on the bone makes the lesion obvious, by which time permanent deformity has occurred. The site is from half to one inch above the carpus. The radius is fractured transversely a little above the epiphyseal line but the periosteum remains intact. The ulna is not fractured but an epiphyseal separation occurs. (The ulna-epiphyseal line is higher than the radial.) Again, fractures without displacement in close proximity to joints may be missed, and for want of early immobilisation the excess callus which results causes marked interference with the function of the joint. The elbow is the joint most frequently involved. In all such cases prognosis must be most guarded.

It may be wise to delay detailed examination for 24 hours until much of the shock and pain have subsided. Provided that the patient's state permits it, the adoption of morphine narcosis or full anaesthesia with nembutal will be helpful. At any rate, no opinion should be expressed until a very careful manipulation of the limb has been carried out. All the bones should be palpated for localised pain, subperiosteal swelling and bending on pressure. All joints should be flexed and extended. In the case of the hind limbs a careful comparison of the length of the respective legs, with all joints extended, should be made. Differential diagnosis between fracture of the neck of the femur and luxation of the hip is not always easy. As has already been pointed out, the animal's age will give an indication, in that fracture is much more common in puppies under six months, whereas luxation more often occurs in adults. The luxation is upwards, or upwards and forwards. The articular head of the femur slips over the superior border of the ilium and lies adjacent to the greater sacro-sciatic foramen. When compared with the opposite side the great trochanter is found to be abnormally high, whilst the distance between it and the ischial tuberosity is increased. If the limb is abducted the head of the femur can generally be recognised, by a finger in the rectum, lying above the border of the ilium. The degree of limb shortening is always great, varying from three-quarters to one-and-a-half inches according to the size of the dog. In this connection care should be taken to ensure that the limbs are fully extended when making this comparison, for in cases of acute traumatic arthritis of the stifle, the animal will hold the affected joint slightly flexed, giving the impression that the limb is shortened. In cases of fractured neck of the femur there is generally some upward displacement. The deformity and shortening, however, are never as great as in cases of luxation.

The symptoms of fracture of the pelvic floor may be confused with the locomotor incoordination of canine distemper. The animal generally is able to take weight on both hind limbs. If forced to move it generally staggers, it being noticeable that it is more lame on one side. There is often considerable abduction. When released it generally sinks on to its buttocks, both hind limbs passing towards the affected side. Rectal examination generally gives positive evidence of such a fracture. The fractured pelvic brim, generally displaced, can be recognised.

Radiography and fluoroscopic screening are invaluable aids not only to the diagnosis of fractures but to effective reduction and setting. It may be impossible to diagnose some cases with certainty without recourse to this aid. This remark applies especially to fractures of small bones such as those of the tarsus and carpus; the patella; epiphyseal separations, etc. Too great stress cannot be placed on the necessity for radiographing the bone in two planes whenever possible, otherwise superimposition may cause confusion. To facilitate this the animal must be relieved of all pain. Two methods are in vogue, either desensitisation of the part by the injection of local anaesthetic solutions between and around the fractured ends, or the induction of general anaesthesia. We favour the latter, using intravenous nembutal. This has the advantage of giving complete muscular relaxation, which not only facilitates radiography but also subsequent reduction and immobilisation.

A word of warning might well be uttered here to the effect that as veterinarians we must not rely too much on radiography for the diag-

nosis of fractures. The economic aspects of the treatment of disease in animals often preclude the use of such costly aids to diagnosis. An accurate opinion can be formed in the majority of cases without its use, provided that the practitioner is skilled in observation and palpation.

Treatment.—The treatment of closed fractures comprises correction of the deformity which has resulted from the break in the bony skeleton. The ideal is that displacement shall be reduced and the natural alignment restored, whilst the broken ends are maintained, as completely as possible, in a state of apposition without movement for a period of time sufficient for healing to occur. The difficulties which attend the carrying out of these provisions are greater in animals than they are in man. The animal being pronograde, the normal position of some of the important long bones is such that effective immobilisation is most difficult. Again, the tendency for animals to interfere with restraining dressings has to be contended with. Speaking generally, the radius and ulna, the metacarpus and metatarsus, present no great difficulties whatever method of immobilisation is selected. The tibia, and especially its upper third, is by no means easy, whilst the humerus and femur may present insurmountable difficulties; in fact, it may with truth be said that in cases of fracture of the femur in young puppies results are often better when they are left untreated.

Reduction.—Without recourse to radiography effective reduction may be difficult, for not infrequently swelling entirely masks overlapping of the fragments. Immobilisation with the ends displaced, is generally followed by good union, especially in young dogs, but there will be deformity. There are cases, however, which result in complete non-union, the case of the overlapping mid-shaft fracture of the radius and ulna in the adult being an example. On removal of the dressings some 21 days or so after the accident, it is found that there is no union, and swelling having subsided the displacement is obvious. By this time, however, the displaced ends have become firmly adherent to the surrounding soft tissues by fibrous reaction, and reduction is now impossible. It is in such cases that wiring is often resorted to, but the results are not good. In one such case I have adopted the method of drilling the ends of the fragments in a number of places, in the hope that the osteoblastic granulations resulting will serve to unite the fracture; but was not successful.

Simple traction on the limb is often insufficient to reduce displacement. Pulling on the limb serves to stretch the soft tissues rather than influence the bone fragments, and if length of the limb only is taken as evidence of reduction errors will occur. This is especially the case in fractures of the femur. My practice is firstly to flex the limb at the fracture, and by manipulation with the fingers bring the fractured ends together. The lower end of the upper fragment then acts as the fulcrum to the leverage of straightening the limb.

The oldest and most frequently employed method of setting a fracture is the immobilisation of as much of the affected limb as is possible using some form of padded splint—wood, metal or wire—held in position by an encircling bandage, the latter often being reinforced by plaster of Paris, starch, gum, resin, etc. The chief disadvantages of the method are:—

(*a*) If the dressing is too loosely applied, or too well padded, it can easily be removed by the animal.

(*b*) If applied too tightly there is a danger of serious interference with the blood supply to the part. It is difficult to estimate the correct degree of tension when applying an encircling bandage.

(*c*) Inadequate padding or movement of the splint may lead to pressure necrosis.

(*d*) The method is limited to the radius and ulna, the metacarpus and metatarsus, and possibly the lower third of the tibia. In the case of the last it is necessary to immobilise the tarsus in a state of complete extension, a most unnatural position. In this connection attempts have been made to employ angular metal splints. Results were not good, chiefly due to variations in the diameter of the limb. In the case of the humerus and femur the application is generally harmful. It being an impossibility effectively to fix the splint to the upper segment, its weight and awkwardness facilitate movement of the lower segment.

A departure from this method was the introduction of poroplastic felt. In our hands this material has not been of great service. It is too bulky to make an intimate cast of the limb and when dry is easily removed.

Treatment of Fractures in the Dog by the Use of the Unpadded Plaster Cast

This method of treating fractures in man was developed by Dr. Lorenz Böhler,[1] of Vienna, and since its introduction has attained great prominence in human surgery. Barrett[2] has recently published a report of its application in the dog. The main principles of the method are that, having replaced the displaced segments, immobilisation is effected, with the joints in a position midway between flexion and extension to overcome tension, by the application of an unpadded plaster of Paris cast. By this means the pressure is disposed evenly over the whole of the enclosed surface, and an effective ecto-skeleton is formed to replace the broken endo-

skeleton. Whilst the necessary fixation of the fragments is maintained, many or all of the joints of the limb are given as full a range of movement as is possible, and active movement, even the taking of weight by the limb, is encouraged almost immediately, and thus by overcoming atrophy of bones and muscles, and stiffness of joints, functional restoration is much more rapid.

The plaster is applied in slabs, and not as an encircling bandage. [The use of encircling (roller) plaster bandages without padding is strictly forbidden, because of the danger of causing pressure sores and severe circulatory disturbances.] It is applied lightly and carefully moulded to the skin, taking care to avoid creases. By attaching itself to the hairs it holds more firmly. After the cast is applied the position of the limb should not be altered until setting has occurred, otherwise creases and pressure points may form. During the first 48 hours after the application of the cast the extremity of the limb must be carefully observed, and if it becomes markedly swollen, or very cold, or if sensation is lost, the plaster must at once be split.

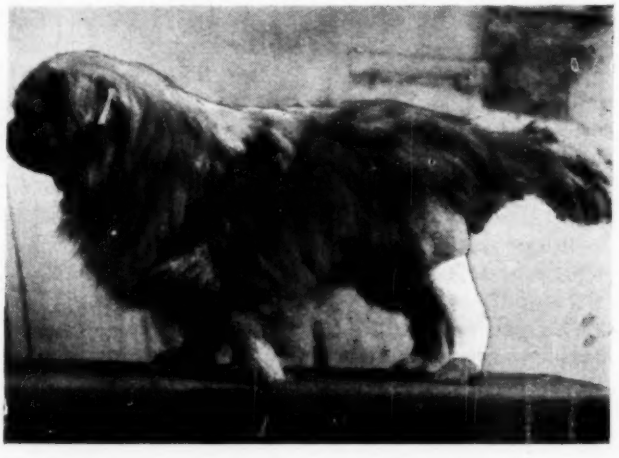
We have employed this method in a series of 77 cases in the dog, comprising:—

Radius and ulna	33
Tibia and fibula	15
Femur	8
Humerus	7
Metacarpus and metatarsus	7
Tarsus	7

The results have been, on the whole, most satisfactory. In the treatment of the more simple cases, such as fractures of the radius and ulna, the method has many advantages over the older ones. The cast is easily and quickly applied, it rapidly sets and, being intimately moulded to the shape of the limb, is not easily removed by the dog.

The subject of radiographs one and two.

The rate of healing is increased and the period of functional disability reduced. In the majority of cases the animal takes weight on the affected limb immediately after recovering from the anaesthetic. Provided that the cast is carefully applied the danger of interference with the blood supply of the limb is small, and the tendency to pressure necrosis is greatly reduced. Cases of chafing of the skin by the upper margins of the cast have been encountered. In most this was chiefly due to its edges becoming wet and ragged, due to interference by the animal. For this reason it is our practice to apply a leather or wire muzzle when the dog is not under observation. It may rightly be said that in these simple cases good results attend the adoption of the older methods. It is, however, with the more difficult fractures that the method is of such advantage. Fractures of the tibia may be tackled with confidence, whilst it has been possible to effect immobilisation of the humerus and the femur.



Nine-months-old Peke. Male. Distal end left tibia. A difficult limb to immobilise effectively.

As yet we have not succeeded in curing a case of fractured neck of the femur with displacement. In one case a cast has been applied but it was not effective in maintaining reduction and immobilisation.

Technique.—The animal is anaesthetised by nembutal by intravenous injection. In the case of long-coated dogs the hair over the area to be enclosed is clipped, using a coarse clipping machine; in short-coated breeds clipping is not adopted. Reduction is effected by extension and coaptation and the limb maintained in position by assistants. The method of preparing the plaster slabs is similar to that described by Pridie,[3] using "Cellona" plaster of Paris bandages (prepared by T. J. Smith & Nephew, Hull). Two-, three- and four-inch bandages are employed. The length of the slab to be made is carefully measured on the limb, and its thick-

1.—Four-year-old Airedale, male. Comminuted, lower third left radius and ulna. In cast after reduction, lateral view.

2.—The same, six months later. Function normal.

3.—Two-year-old Aberdeen Terrier, female. Complete with displacement, lower third left humerus. Reduction imperfect. In cast.

4.—The same, four months later. Function normal.

5.—Nine-months-old Alsatian, male. Comminuted oblique left tibia and fibula. In cast.

6.—The same, five-and-a-half months later. Function normal.

7.—Six-months-old Terrier, female. Complete mid-shaft left femur, after reduction. In cast 14 days.

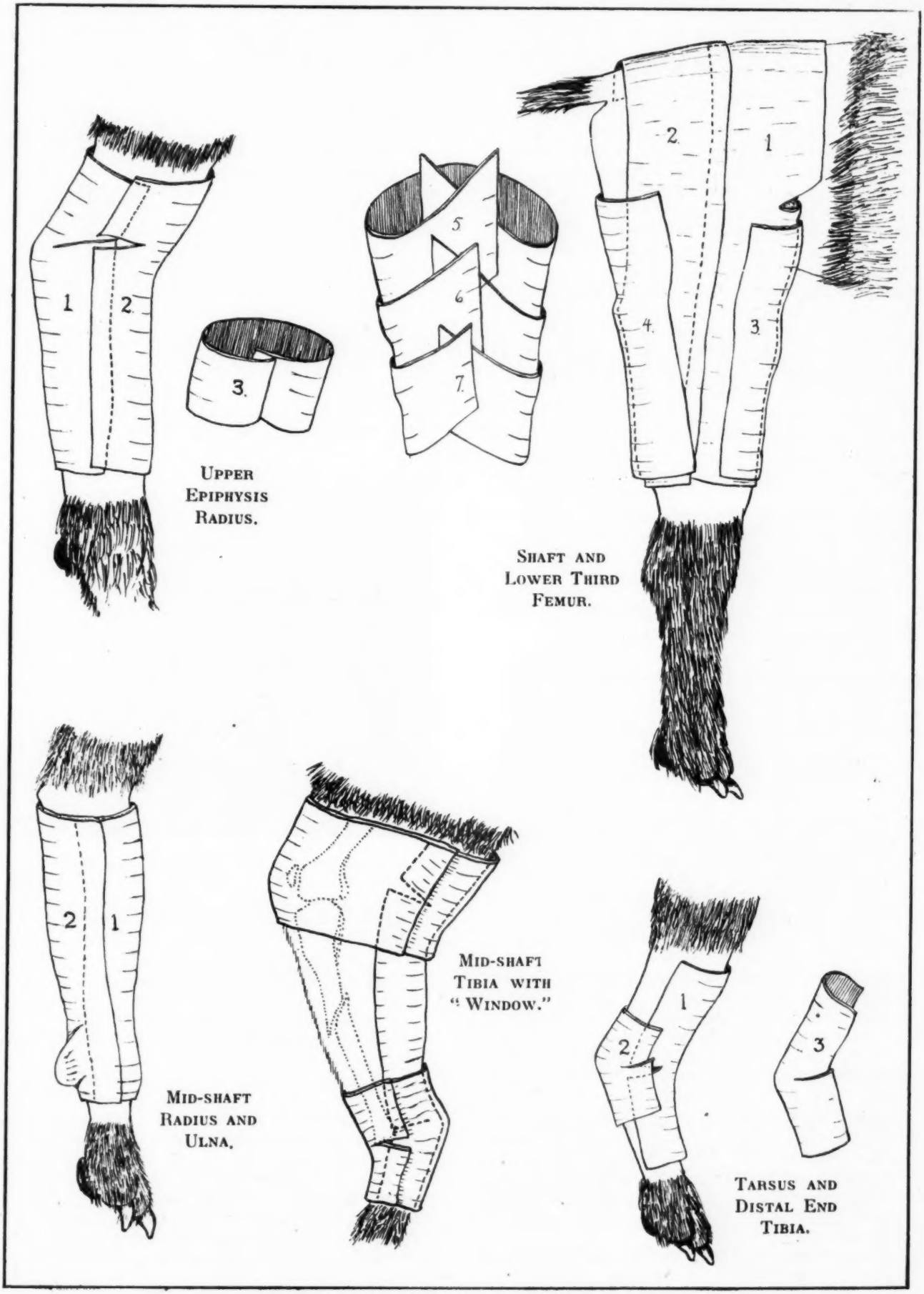
8.—The same, six months later. Function normal.

9. — One-and-a-half-years-old Alsatian, female. Typical mid-shaft with displacement, left femur. First seen eight days after occurrence. Unable to influence position of fragments. Cast applied, radiograph taken 14 days later.

10.—The same three months later. Callus has bridged a gap of one-and-a-half inches. Slight inward rotation at break. Shortening occasions no marked abnormality in action.

11.—Six-months-old mongrel, female. Typical lower epiphysis left femur with backward rotation.

12.—The same after reduction, in an extension splint.



METHOD OF APPLYING PLASTER SLABS.

ness will comprise four, five or six layers of bandage, according to the weight of the dog. The appropriate length of bandage is rolled upon a glass rod or pencil and soaked in luke-warm water for a few seconds. The slab is made on a glass plate. The loose end is placed on the glass and the measured length unrolled. The correct thickness is obtained by super-imposing the appropriate number of layers over the original one. During the procedure it is ensured that the plaster is well wetted, and the layers are pressed well together to secure even distribution of the plaster, and to remove air bubbles. The slab is removed by sliding it off the edge of the glass. It is necessary to make a number of such slabs completely to encircle the limb. Prior to the application of the slab the hair is wetted so that it more readily takes up the plaster. It is placed on the limb and care-fully moulded to it by stroking with the fingers. Where there is considerable variation in the thickness, as in the case of a tibia, the cast is shaped before application, whilst at joints it is cut at the sides to provide the correct angulation without creasing. The application should be carried out with as little delay as possible so that the edges of one slab are not drying before those of the next one are superimposed, it being important that the cast shall be homogeneous and everywhere in intimate contact with the skin without any ridging or creasing.

After the cast has set it is our practice to cover it with a lightly applied encircling bandage. The only object of this is to protect the plaster if the animal is inclined to interfere with it. If there is evidence of the bandage having been interfered with a muzzle is applied. A careful inspection is made at the end of 24 hours to ensure that there is no interference with circulation and provided all is well the animal is sent home, and re-inspections made at the seventh, fourteenth and twenty-first days. The owner is informed that the animal should use the limb almost immediately, and if it fails to do so is to be returned for re-inspection. He is also to watch the upper and lower edges of the cast, and should these become frayed or rough they should be trimmed with scissors; portions may be even cut away if necessary. Whilst 14 days' immobilisation may be sufficient in young puppies, in adults it is best to maintain it for 21 to 28 days. As the animal has been using the limb throughout it is almost well when time for removal arrives. A word of warning should be uttered to the effect that although the animal is jumping about on the limb at the end of six or seven days, this is only evidence of the effectiveness of the cast and not that the bone has already completely healed. Too early removal may result in disappointment.

I will refer to fractures of the tibia and femur in some detail, as they represent the most difficult cases.

Tibia.—Fractures of the tibia fall into three types: (*a*) The head, generally transverse, and often with gross backward displacement of the lower fragment. (*b*) Mid-shaft. Generally oblique and often comminuted. Frequently there is severe subcutaneous contusion and even laceration of the skin by the sharp ends of the fragments. (*c*) The lower third. The lesion is similar to (*b*). Often the tibio-astragaloid articulation is involved and there may be partial luxation.

I have already referred to the shortcomings of the older methods.

All fractures of the tibia are amenable to treatment by the plaster cast. In breaks of the lower third it has been found sufficient to enclose the limb from the upper third of the tibia to the mid-metatarsal region, the tarsus being fixed at an angle of about 140 degrees.

Four-year-old mongrel female. Distal third right tibia. Illustrating "hock" cast.

Fractures of the mid-shaft require special treatment. In our early cases we were enclosing the limb from the lower third of the femur to the mid-metatarsal region, taking great care to avoid ridging or creasing of the plaster over that portion of the limb where the bone is subcutaneous, for it has been already pointed out that the skin in this region is liable to have been severely contused. Despite the greatest care, three cases of necrosis of the skin adjacent to the fracture have occurred. The lesion has developed at about the seventh day consequent upon slight loosening of the cast, due to the swelling subsiding. This loosening has caused movement which in turn has caused necrosis. In no case has necrosis of the bone necessitated the animal's destruction. For this reason it is now our practice to leave a large window in the

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cast over the region of the fracture. This can be done without spoiling effective immobilisation. In fractures of the head it is generally sufficient to enclose the limb from the lower-third of the femur to the lower-third of the tibia with the stifle joint slightly flexed.

The subject of radiographs five and six.

Femur.—Fractures of this bone present the greatest difficulties of all. In general they fall into three groups.

(*a*) *The Neck.*—Most common in puppies under six months. The neck of the femur in the dog is short and as the break occurs almost immediately external to the articular head, the articular segment is very small. In addition there is generally upward displacement. We have not been successful in effectively immobilising this fracture. Amongst the methods employed have been the plaster cast, the extension splint, and pegging, using an ivory peg, after the manner of the Smith-Petersen pin employed in man. It is improbable that the fracture ever heals spontaneously, and lameness, which in the case of puppies may only be slight, persists for life. We have not seen a case in which what could accurately be described as a "false joint" has developed. In some, fibrous union has occurred, whilst in others there has been complete non-union.

(*b*) *Mid-shaft.*—In these there is generally gross displacement. Spasm of the ilio-psoas group of muscles causes the upper fragment to be drawn upwards and forwards, whilst contraction of the quadriceps pulls the lower fragment upwards, with the result that the ends become completely separated with marked overlapping. Splinting is quite ineffective; in fact, it is harmful. It being an impossibility to fix the splint to the short upper segment, the result is that its weight and awkwardness facilitate movement of the lower segment. It is, I think, generally agreed that in young puppies no treatment other than confinement in a small kennel gives much better results than ineffective splinting. Whilst a mid-shaft femoral fracture with gross displacement in a young puppy generally heals spontaneously, this is not the case in the adult. Unless effective immobilisation can be brought about, complete non-union will be the result and the animal's destruction will be necessary. Most publications on fractures make some reference to open surgery wiring, plating, etc.—in these cases of non-union of the femur—although we know of no records indicating the result of this treatment. Our experience in this connection has not been a happy one. Both plating and intramedullary pegging have been adopted, but we have not effected a radical cure. The operation is a formidable one. Great difficulty has been experienced in maintaining the limb in complete extension and the ends of the fragments in apposition whilst effecting the artificial union. In the case of pegging it has been found extremely difficult to obtain that hyperextension necessary to slip the lower segment over the peg. In one case the compact bone split when attempting it. In the case of plating, erosion of the screw holes has caused movement of the plate. In one case in which union by plating was effected, subsequent sepsis necessitated destruction of the animal.

In mid-shaft femoral fractures we have had good results with the plaster cast. The cast extends from the vertebral column above to the lower third of the tibial region below. The hip is fixed at right-angles to the spine with the stifle in extension. It has been found that by continuing the slab over the back towards the hip of the opposite side the upper segment can be positively immobilised. The greatest difficulty associated with mid-shaft femoral fractures is to bring the grossly displaced fragments into apposition, for the upper segment is so short and is so completely surrounded by soft tissue, often greatly swollen, that it is quite uninfluenced by traction, pulling on the limb simply causing stretching of the soft tissues. In this connection I would pay tribute to Schroeder,[4] of New York, who has succeeded in applying skeletal traction through the medium of metal calipers penetrating the lower fragment, and attached to a traction splint. [The speaker demonstrated an animal in which traction

calipers attached to an extension apparatus were being employed in a case of fracture of the femur.]

Despite the fact, however, that the fractured ends are not in apposition and often greatly separated, provided that immobilisation is effective, bone callus is capable of bridging very large gaps. The great value of the plaster cast in this connection is that consequent upon the animal using the limb, osteoblastic activity is rapid and calcification of the callus occurs early. This is in marked contrast to the use of extension splints, to which I will refer later.

The subject of radiographs nine and ten.

(c) *The Lower Third.*—The site of the fracture is immediately above the condyles and involving the upper limits of the trochlear articular surface. The break is generally complete and consequent upon spasm of the semimembranosus muscle the small lower fragment is rotated backwards. If left unreduced, the lesion, whilst healing readily, results in gross deformity of the stifle joint, and marked permanent lameness. Reduction is often difficult owing to the smallness of the lower fragment, and this is one of the types in which primary flexion has greatly facilitated effective reduction.

This fracture has been treated by the unpadded cast method, and by the use of the wire extension splint. In this country, McCunn[5] has developed the use of this latter apparatus, whilst in America Schroeder has recorded its value. The splint I have been using is the same as the one described by Schroeder. The ring is set at an angle of 20 degrees to the shaft, and extension is maintained between the pelvic floor above and the end of the digit below. Adhesive tape serves to fix the limb to the splint. All joints below the hip are maintained in complete extension.

The subject of radiographs eleven and twelve.

In my view the chief disadvantage of the method is that, as the result of inaction, marked muscle atrophy occurs, callus formation is slow and calcification of the callus is retarded. There are cases, however, in which its application is the only way in which effective reduction and immobilisation can be brought about. If the cast method can be satisfactorily employed in the particular fracture under treatment, it is, in my opinion, superior to the extension splint.

At this point I must close, for I have already occupied more of your time than I should; nevertheless, the subject is such a vast one that these few remarks have only touched its fringe. Before doing so I wish to express my indebtedness to my colleagues, Miss M. Oyler, Mr. P. M. Sutton and Mr. J. B. Blaxland, who have worked with me during the period under review; and to Mr. H. J. Ede, who has taken the radiographs.

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[4]Schroeder, E. F. *N. Amer. Vet.* (1933.) Vol. 14. No. 2. p. 32, No. 5 p. 27, and No. 12. p. 38.
[5]McCunn, J. *Vet. Rec.* (1933.) No. 13. p. 1236.

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[The speaker illustrated his address by a large number of photographs, diagrams and radiographs, on the epidiascope. A selection of a few of these is being published.]

Discussion

Dr. J. McCunn, responding to the invitation to open the discussion extended to him by the President, said that it was very difficult for him to do so—one reason being that it was only three days previously that Professor Wright had honoured him by asking him to open it. He had seen no more of the paper than they who were present that evening. With those limitations he would do his best.

Professor Wright had told them that in presenting a paper for discussion that evening he was breaking with tradition; that was typical, however, of an age wherein everyone was breaking with tradition. He was glad to see that Professor Wright had at last been converted to the more modern methods of treating fractures. The time when it was considered correct treatment to place bits of wood and of insulating tape, etc., around the dog's leg had gone.

Under cover of darkness and consequently with some difficulty he had managed to make a few notes of their President's address as it was so ably delivered. Dealing first with the causation of fractures, there was no doubt that the two great features were direct and indirect violence. He disagreed with Professor Wright when he said that indirect violence was never very severe. It was possible that one of these days Professor Wright might either step on or step off the pavement, slip or stumble, and find himself lying in the gutter. He would be carried off to hospital and he would discover that his patella was in many pieces. He (Dr. McCunn) hoped that such a thing would never happen, but if it did the President would realise that indirect violence could be just as great as direct violence.

As regarded fractures arising from simple falls, the essayist had said that this cause applied only to young dogs. He agreed that simple falls often caused injury in young dogs but he disagreed with the statement that the same cause was not a frequent factor in injury in aged animals. In old dogs the bone had lost much of its organic material. It had lost much of its elasticity. Quite often he saw old dogs that were brought to him with fractures—even fractures of the pelvis—and frequently the only history was that they had fallen off the owner's lap or off a chair.

He was at one with Professor Wright in stressing the importance of what he would call green-stick fractures in puppies. Indeed, he would go further and would say that any injury to a puppy's leg should be treated with the greatest respect. It was much better to put the leg in a splint, however temporary that splint might be, than to leave it and just tell the owner that the dog had got a simple sprain.

Like the President, he had seen many cases brought to the College in which it was with the greatest difficulty that one could persuade the anxious owner that everything possible had been done when, perhaps, one had to deal with a dog with a radius and ulna bent at an angle of 50 to 60 degrees. Sprains were always serious. The only way he knew of defining a sprain was to say that it might be anything short of a fracture: a sprain was always better for being put in a splint at first.

Fractures near joints were invariably dangerous and often the prognosis was bad, especially if the articular line was broken—if the articular line was not broken then the prognosis was more hopeful.

In the diagnosis of hip dislocation, of which lesion he had had considerable experience, he paid very little attention to rectal examination, while comparison of the length of the dog's hind limbs was, in his opinion, of no consequence; you could make the length whatever you wished: it was simply a matter of bending either the stifle or the hock joint to a greater or less degree. The most positive test for uncomplicated dislocation of the femur was to catch hold of both femora in your hands and place your thumbs on the great trochanter. On abduction, the prominence of the great trochanter would disappear in the normal limb; in a limb which had an upward dislocation (which was the common type) the trochanter became more prominent. To his mind, that was the most positive test other than X-ray.

He would also stress the use of X-rays. In his view, the owners of all dogs, whether rich or poor, should be told that the X-ray was at any rate likely to be useful and they should be given the choice of accepting or refusing one. In this way one prevented any subsequent recriminations.

He did not agree that there should be restraint on the limb in cases of simple luxation of the head of the femur. In a recent case the animal should be let loose immediately after reduction of the luxation.

He remembered a case that Major Kirk brought to the College, in which reduction was effected under chloroform anæsthesia. As soon as the dog recovered from the chloroform, which was not very deep, it was able to walk away from the College.

Angular splints and the various shaped contraptions they had tried in the past were generally useless. They were liable to move, and very irregular pressure was generally exerted in the wrong way. Poroplastic felt was a considerable advance on the old angular splint method but, in his opinion, its uses were limited. These unpadded plaster casts described by Professor Wright were excellent, and he thought that the wonderful material, "Cellona," that was produced by Smith and Nephew, of Hull, was worthy of unstinted praise.

He wondered if Professor Wright had ever attempted to make split plasters: it was quite

an easy matter and by that means one could make a mould in plaster of the dog's leg. When one was making such a plaster one had to lay metal strips under the plaster and then saw through the plaster. One could produce a mould which was divided into two parts. One could fix "eyelet" holes in it or clips similar to boot clips, and lace the two halves together. The edges of the moulds were strengthened with adhesive tape.

He was glad to see that Professor Wright was a believer in ambulatory treatment, for nothing stimulated the bone cells more or more readily stimulated healing in a broken bone. He thought that it was better for them as non-pathologists to call osteoblasts, osteoclasts, etc., simply bone cells. Nothing stimulated them better than a little shaking and damage.

As regards the animal's interference with the cast, this was often a nuisance. He thought it was essential to muzzle the dog. However, he had great difficulty to get owners—or house surgeons either, for that matter—to muzzle dogs. That morning he had seen two house surgeons fix a very wonderful cast on a whippet's thigh. An hour afterwards he noted that the dog had two-thirds of the cast torn to pieces. If one was going to do good work one should protect it.

Professor Wright had told them that he had never yet seen satisfactory resolution in fracture of the neck of the femur. He (Dr. McCunn) had seen many cases in which resolution had been all that could be desired, and he thought that this was the ideal case in which to use the Thomas splint. He would qualify that, however, by mentioning that this method was not always successful in those cases in which there was a dislocation.

In simple fractures he never clipped the hair. He thought that the hair made a very fine protective pad. They must all have noticed when they removed splints, which had been on for some time, they were lined on the inside by a beautiful coat of the dog's hair.

Their President had told them that he could not immobilise the neck of the femur: again he (Dr. McCunn) would draw his attention to the Thomas splint. He entirely agreed with Professor Wright when he said that fracture of the femur in puppies was best left alone; the puppy should be confined in a cat cage and nothing should be done. This treatment applied also to similar fractures in the cat. At the College a few days previously they destroyed a cat with a fracture of the upper third of the tibia which was due to osteosarcoma. No treatment was possible on this occasion, but twice previously this year fractures in the same tibia had healed under confinement treatment. Lameness, in his opinion, only persisted where there was some adhesion or if the articular cartilage of the joint was involved.

As regards mechanical methods of fixing bone, he had practically given up the wiring or plating of long bones. The shell of a dog's long bones was not strong enough to stand the stress of screws or wire. He had practised it in many cases in the past, but it was not a method he adopted now. Some of his cases had been successful, but they had been chiefly in the smaller breeds, which could easily be controlled. The most successful case he had was one in which he made a medullary peg of bone. The peg was made from the first metatarsal bone of a greyhound. It was boiled for 24 hours (probably that was far too long, but he wanted to make sure it was sterile). Its ends were sharpened and then it was wedged into the medullary cavities of the upper and lower fragments. That dog was a Peke and it had done very well. It probably would have done just as well if it had been left alone.

The caliper method was useful. At present he had had no experience of the use of the human caliper in dogs. He had done similar experiments with needles.

A very good way of getting extension at the femur was to pass a sharp needle through the lower end of the femur and then, of course, you fixed your elastic extension apparatus on to the needle or pin. In one case he drilled the upper segment as well as the lower segment, passed pins through and then outside the limb he tied these pins by means of wire, pieces of metal, bone plates, etc. This arrangement functioned as a splint. He had an X-ray of the leg at the College, and the subsequent result was reasonable. He had had successful results from wiring the upper end of the tibia. At this site there was plenty of bone. The best result—and he had the tibia at the College now—was in a greyhound which had a fracture with considerable displacement through the upper third of the bone. It was wired in two places and put in an extension splint. The dog recovered sufficiently well to race, but he lost his pace. There was one little anatomical point about which he would like to ask Professor Wright, and that was, how did the semi-membranosus pull the lower end of the femur backwards?

Reverting to the Thomas splint, he used to have steel rings made, but he had discontinued that method nowadays. He used strong steel wire, covering the steel wire with rubber tubing. He made the ring to fit the individual dog. In the case shown them by Professor Wright that evening he would not carry the splint so far down the leg. In many cases when he used to carry the splints down so far he found that they hampered the dog in rising and getting about. In fracture of the femur he rarely carried the splint beyond the lower border of the hock. He left the animal's foot free.

He agreed with Professor Wright that it was

impossible by means of the hands to reduce most fractured femora. The method he adopted of effecting reduction was by gentle continuous traction. Their President had also dealt with a fracture of the vertebral column, *viz.*, fracture of the axis: he (Dr. McCunn) had not seen that particular type of case. Generally it was the odontoid process that was fractured. He had a case in a greyhound, "Guillian Boy," which fractured the axis and also sustained dislocation under the wing of the atlas. By severe handling they managed to reduce it (as they proved by X-ray) and that dog got perfectly well. A marked symptom in that animal was the extreme pain the dog had over his forehead: it could not bear being touched in that region. In other cases of fracture of the odontoid process he had noticed the same symptom. He could bring to their notice another case of fracture of the axis, in which the bone was broken just in front of the posterior articular process. This dog belonged to a lady veterinary surgeon who would shortly publish the case. The dog stumbled, but its nose hit the ground and it fractured its neck. It was immediately unconscious and could not move for some time. An X-ray yielded a most beautiful picture through the spine of the axis. The dog received every care for somewhere in the region of six to seven months and it recovered so well that when an X-ray was taken one could not see any sign of the injury, although there had been quite a wide fracture. It could stand up, but it could not use its legs and at last the owner's patience was exhausted and the dog was destroyed. They had the specimen at the College now. If they had not the original X-ray they would never know that it had been broken, but by the aid of that X-ray one could distinctly see the line of fracture.

Professor Wright's pictures proved that the two best methods for fractured femur were masterly inactivity and the Thomas splint.

He was afraid that he had given rather a poor and disjointed opening to a very good paper. In many ways he thought that Professor Wright had missed his vocation. He felt that their President would make a wonderful statistician and that he would really enjoy himself with Dr. Greenwood if he were let loose with all the latter's statistics on mice and rabbits and their epidemics.

Major Hamilton Kirk thought that the President was to be congratulated on the very thorough way in which he had reviewed his subject. It was a subject, of course, which to the veterinary surgeon in every-day practice was of prime importance all the time, and whose problems were very near to them, and sometimes were very difficult to elucidate.

It was an unfortunate thing that the femur came second highest on the list indicating the frequency of the occurrence of fractures and, worse still, that it was mostly the neck of the femur which was broken. The femur was, with one possible exception, the most difficult bone to set when it became fractured. The other was the os calcis, fracture of which, in racing greyhounds at any rate, was a nightmare to the practitioner. He knew of no method by which one could set and maintain the shaft of that bone in alignment. One could not apply pressure from before backwards, in order to keep the shaft straight, because of the risk of necrosis. The pull of the tendo Achillis maintained deformity, against which splints seemed quite useless, and the dog was left with an exaggerated flexure of the hock.

In regard to treatment of the femur, maybe he was not so progressive as some others, because he still adhered to the old-fashioned method of applying a pitch charge. Rather than leave untreated animals with such fractures (as had been suggested) he preferred to do something if only to allay the suspicion in the owner's mind that the practitioner did not know what to do. Very few clients would really believe that an animal with a broken leg should not receive even elaborate treatment. Besides which he thought it was in the interests of the dog, as a humane measure, to effect immobilisation of the limb as soon as possible.

Whilst to place the broken ends of a femur in apposition was exceedingly difficult, he found no difficulty whatever in immobilising the whole limb. For that purpose he shaped a stout piece of cardboard from the mid-shaft of the tibia to the dorsal processes of the lumbar vertebrae, making it conform comfortably to the flexion of the stifle joint. This was fixed to the region by hot pitch (the hair not being removed) and layer after layer of "pitched" bandage being thereafter applied in all directions.

Plaster of Paris bandages had always seemed to him to be very heavy, because if one attempted to lighten the weight by applying less of the material, when at last the plaster became quite dry it got powdery and would crack and chip off. Invariably the application of sufficient plaster of Paris bandage for adequate strength meant inordinate weight. He had been impressed by the neatness and apparent strength of the plaster casts exhibited. The question reminded him to mention a very useful splint material for small dogs and cats, *viz.*, "Windolite"—the artificial window material for cowsheds, greenhouses, etc. It was reinforced with fine wire which, after cutting to shape, gave the edges a roughness that prevented the overlying bandage from slipping. Windolite, though very fine and light in weight, was considerably rigid and strong when cylindrical and encircling a limb.

In dislocation of the hip joint he thought it was essential to X-ray the lesion, for if one attempted reduction of such a hip when there was an unsuspected fracture also present one would create even further damage.

Professor Wright had spoken of rupture of the liver. That reminded him of a case once seen by him in which a dog had been run over and had internal haemorrhage. He made a *post-mortem* and found nothing but a crushed liver. He marvelled how the liver could have sustained such damage in the absence of any fracture of bones or of skin bruising.

Sometimes animals were brought in which had been treated by quacks who had allowed the ends of a fractured bone to unite very much out of alignment. He had always wondered as to the advisability of re-breaking the misshapen bone and trying to effect a better union. He had, in fact, tried to do so, but had failed absolutely to rebreak the bone, chiefly for fear of doing greater damage elsewhere. Was it,

therefore, advisable to try, and if so, how was it to be done?

It had been his usual experience that if good union of a fractured bone had not occurred within three weeks, it was very rare—whatever one did—to induce the formation of osteophytes after that time. In setting a leg he always anaesthetised the dog; he did not think it was humane, nor could efficiency be attained, unless an animal was completely insensible. He used morphia and chloroform.

He believed that the President had said that it was a very difficult thing to immobilise the stifle joint in cases of fracture of the lower end of the femur, because extension of the joint was essential. [The President: "You have not got that quite right."] He (Major Kirk) apologised if he was mistaken, but said that here again, his method of immobilisation was by the application of pitch over a stiff, shaped base, probably of cardboard.

Concerning the use of bone pegs, screws and plates, he had heard of these operations being performed; but he had been very sceptical because in operations upon bone he knew that extremely strict asepsis was imperative; and among animals such was hard to obtain.

If he recollected aright, the essayist had said that fracture of the neck of the femur had been mistaken by some for von Perthe's disease. He did not agree with the President there. He had taken radiographs, and seen others, of hips affected with von Perthe's disease, in which there were no signs of fractured neck or head of the femur. The characteristic feature (among others) of von Perthe's disease was the curious flattening or faceting of the articular head, with definite widening of the articular space.

They were taught at College that life was incompatible with a broken neck and it had been very interesting to hear of survival in a dog which had sustained a fracture right across the axis.

Before he resumed his seat, he desired to refer to Dr. McCunn who, in his able opening of the discussion, had said that "if once the hip went in after dislocation it never came out again." There were exceptions, however: Dr. McCunn might remember one—(laughter)—one of the cases with which he asked Dr. McCunn to help him. That hip was put in three times and each time it came out. No doubt there was a reason for that—possibly part of the acetabular rim was broken, or the ligamentum teres was ruptured. [Dr. McCunn: "That was the one with the fractured acetabulum."] There were exceptions, as he had said, so that he did not know that it was always right to allow the dog to jump about too soon unless one was quite sure that the head of the femur was so securely home that luxation was unlikely to recur.

Captain F. C. Gillard observed that, at the outset, he would like to add his tribute to Professor Wright for the most excellent paper he had given to them that evening, showing the mastery of detail for which he had such reputation. Professor Wright had left very little for his hearers to criticise, but he would like to make a few remarks, in particular with regard to fractures of the neck of the femur. His own experiences, though they had not been such nightmares as one or two speakers had mentioned they had seen, were nevertheless sufficiently disconcerting. He agreed, however, if on X-raying fracture of the neck of the femur were found, that if one immobilised the hip in the way Major Kirk had mentioned they would get excellent results. His practice was to put a pitch plaster over the hip, reinforcing this with cardboard in the form of an arch, applying it over the upper coccygeal vertebrae and bringing it as far forward as possible, carrying it down both thighs, connecting these underneath with bandages, so preventing the dog from abducting his limbs—a very important precaution.

Concerning the use of X-ray, it was very essential in cases of suspected fracture or dislocation and in the latter where the hip was concerned whether the dislocation was forward or not: most of them were forward.

In regard to reduction of a dislocated hip, last year he had a case in which there was anterior dislocation of the right hip: X-ray showed it very clearly. He had his patient under an anaesthetic. After a quarter of an hour he found by a further X-ray that it was still out, though he had used a good deal of force trying to reduce it. It then occurred to him that some time ago he had reduced a forwards dislocated hip in a very simple manner and he tried it again with excellent results. The method was simply to put pressure on the limb over the hip with one's fingers and carry the foot forward, so far as one could. With the dog lying on its side, carry the leg forward and the foot over the upper portion of the neck, and without any undue force the dislocation was instantly reduced. In this instance he again X-rayed his patient and found that the head of the femur was in its normal position in the joint cavity. The patient was kept under morphia on the operation table all night and next morning on being removed it was perfectly all right and had been quite normal ever since. He did not know whether it was always advisable to let them go free, as Dr. McCunn had said, immediately after reduction, but he had not a sufficient number of cases of this condition from which to judge.

He thought that Professor Wright had not mentioned anything about the treatment of the skin prior to applying his cast. Personally he always liked to make quite sure the skin was quite clean and dry, and generally used boric acid, while if one had to enclose the foot one should put cotton wool in between the individual toes.

In his opinion it was essential to clip off the hair if the coat were very dense, in cases where the dog had been run over. In such cases one got so many little punctures in the skin which one could not see unless some of the hair were removed, while if one was going to cover the skin with any material one must first make sure that the skin was clean. In these cases he would not apply his fixation method for another 24 or 48 hours.

Dr. McCunn had mentioned that he did not think that reliance could be placed upon extension of the hind limbs in the diagnosis of dislocation of the hip. He (Captain Gillard) thought that by putting pressure on the hip-joint and at the same time extending the limb backwards a very good idea could be obtained as to whether or not there was any shortening of the limb.

Mr. H. C. P. King said that he desired personally to thank Professor Wright for having introduced the Fellows of the Society to two important things—first of all, nembutal anaesthesia in the small animals, and secondly, the cellona plaster cast of which they had heard that night. Since the President had shown the latter to him he had had nothing but praise for it, and he was perfectly certain that Professor Wright's criticism of the encircling bandage was more than justified.

Mr. K. Ollerhead expressed to the President

his appreciation of the very instructive evening that he had given them, adding that he desired him to know that for the past six or nine months he had been adopting that method of the plaster cast, and had obtained excellent results. His reason for adopting this method was because he had heard what excellent results the President had obtained through it and the house surgeon, Mr. Peter Sutton, had kindly demonstrated it to him.

Captain R. J. Stow, having expressed his indebtedness to the President for his paper, which, said Captain Stow, had been of the very greatest interest to him, observed that just one point had occurred to him and that was in regard to fractures of the radius which sometimes did not unite. Several people had said that evening that if they did not unite in a few weeks they never would do so. He had a case, now five years ago, of a dog which had sustained a fracture of the radius and ulna. He did not see it in the first place, the animal being seen by a locum. The latter put the fracture in splints, but when the splints were removed about three weeks later it had not mended at all. In the end he (Captain Stow) fixed the dog up with a leather legging which was laced up at the side, and although the bone did not unite the dog could use the leg to a certain extent. He had not seen that dog again until about three months ago, when he was surprised to find that the animal was running about quite normally in spite of the time that it was under treatment.

Concerning dislocation of the hip-joint, on several occasions he had failed to reduce that properly, and on seeing the animals again later he had found the joints still out. His experience in a number of such cases had been that after a few months the animal would run about as well as ever, although the lesion had not been reduced. He remembered one case in which a Sealyham was crushed by a car and X-ray revealed a dislocation and the fact that the acetabulum was fractured in four places. He simply kept that dog quiet in a kennel and three months later—it had gone home in the meantime—when he went to get him for the purpose of another X-ray, he found him chasing a rabbit. That dog's joint was always out.

Mr. P. M. Sutton observed that Major Kirk had referred to the liability of bone to undergo sepsis. He thought that Professor Wright had not sufficiently stressed the great power of bone to overcome infection provided free drainage was allowed. The three cases of bone sepsis referred to by Professor Wright were certainly gross, and though at the time it was thought that the dogs would have to be destroyed, or the limb amputated, when a window was made in the cast and drainage allowed, sepsis was rapidly overcome.

Mr. Sutton added that one outstanding benefit of the unpadded plaster method was in the treatment of compound fractures. In the Beaumont Animal Hospital they now treated these cases with every expectation of success, whereas formerly prognosis had been grave; in fact, that very morning an Alsatian had been presented with a compound fracture of the radius and ulna. A veterinary surgeon had described the case as hopeless. They had treated it by means of a window cast and had every hope of a recovery. [Mr. Sutton reports that eight days later the wound had entirely healed and the fracture was rapidly callusing.]

Major A. A. Pryer observed that the President would recollect that he had introduced him to Doctor Bohler's book, which he had read with great interest, and the author of that work frequently made mention of a zinc oxide preparation called Unna's paste. He had it in mind to try it and he would ask if the President had done so, and if so what were the particular uses of this preparation in the treatment of fractures.

The Reply

The President, at the outset of his reply to the points raised in the discussion, caused laughter by observing that Dr. McCunn and he were in remarkable agreement: their only real differences were in shades of opinion.

Proceeding, Professor Wright stated that he only referred to luxation of the hip by way of differential diagnosis from fractured neck of the femur. He thought, when he wrote the paper, that the subject of luxation of the hip would loom somewhat prominently in the discussion because it was such a serious condition, and for that reason he had not enlarged upon it in his address. He thought that Dr. McCunn was a little optimistic regarding the prognosis in such cases.

He (Professor Wright) had been described as a statistician and he made no apology for that because he hated impressions. (Hear, hear.) He had, unfortunately, got statistics of their treatment of luxation of the hip; he said unfortunately because he found that they cured only 30 per cent. of cases. The radiograph gave one an erroneous impression because it only showed bone; soft tissues might not exist. In many cases the upper borders of the capsular ligament were ruptured; the head of the femur passed through it and in many instances the capsular ligament became adherent to the neck of the femur by cicatricial tissue. He believed that, in dogs anaesthetised by nembutal, he had reduced the luxation: it was not a very difficult thing to do, the trouble was that a lot of them came out again and, as he had said, his results had been three complete recoveries out of ten. Schroeder, of America, an eminent fracture surgeon, treated his cases of luxation by the use of the Thomas extension splint; adopting a similar procedure, he (Professor Wright) had not had an increase in the number of recoveries.

Immobilisation in femoral neck fracture was very difficult to achieve. They must regard the whole of the limb as one fragment and the small articular head as the other. Would the Thomas splint absolutely check any forward and backward movement in such a case? He submitted that it would not: the plaster cast would not do it. Would a pitch plaster overcome both the abduction and the adduction? He believed that many of the cases that were classed as recoveries still had a fractured neck of the femur with a fibrous union and were permanently, although possibly slightly, lame. He maintained that such cases did not make those complete and absolute recoveries which it was reasonable to expect when the bone healed.

He placed considerable stress on extension of the limbs when making a diagnosis of luxation of the hip or fracture of the neck of the femur. If the dog's hind parts were lifted with the fingers placed in front of the femora and the thumbs upon the ischial tuberosities, the limbs became extended and a careful comparison would reveal shortening. In cases of luxation this shortening was generally more marked. The next step was to compare the distances between the ischial tuberosities and the great trochanters on each side. Thirdly, compare the height of the respective great trochanters. Excessive abduction could be induced with a fractured neck;

there was also greater prominence because there was generally upward displacement. Rectal examination was useful. Concerning clipping of the hair, he thought they would agree that when dealing with such breeds as the Chow and retriever it was wise to remove loose hair before applying the cast. They used a coarse-headed clipper for the purpose.

Replying to another point raised by Dr. McCunn, Professor Wright said that in his ignorance he thought that one of the many duties of the semimembranosus muscle was to extend the hip joint. Did not it arise in part from the ischial tuberosity and become inserted into the external (this should be internal) epicondyle of the femur? If the condyles were fractured would not they be rotated backwards by spasm of that muscle?

In reply to Major Kirk, he would commend to him the use of the unpadded plaster cast in cases of fracture of the os calcis, provided that the cast was applied early and that the animal was anaesthetised during its application. The cast could be so moulded about the hock and into that depression in front of the tendo Achillis that effective immobilisation of the fragments in correct apposition could be brought about. They were still, of course, only on the fringe of that great subject of bone surgery. Böhler's method of dealing with cases of non-union was by the application of bone grafts. So far as he knew the method had not been seriously attempted in animal surgery.

In regard to the weight of the plaster—cellona plaster was amazingly light. In the case of the femur cast (the speaker was referring to the cadaver of a dog extensively fitted with plaster casts for demonstration purposes) the weight was only about 8 ounces.

Proceeding, Professor Wright observed that he did not think that they should go away with the impression that the majority of cases of broken neck were going to recover. He had recorded his case because he considered recovery remarkable and he still believed that the majority of such cases would either die or have to be destroyed because of the resulting permanent paralysis.

He liked Captain Gillard's unusual method of reducing the luxated hip; it reminded him of the unorthodox methods he had applied himself in reducing displaced fracture of the femur, leverage rather than traction being the more rational force to employ.

Mr. Sutton had told them that they had found infected bone heal amazingly well. He could support that statement. As an instance of what bone could do he would quote a case he had attended for Captain Stow. The case was one of mid-shaft fracture of the femur with displacement in a retriever, and the operation of pegging was being performed. As the peg was being forced into the medullary cavity of the lower fragment the whole of the compact bone split—rather like the frame of an umbrella. He contemplated destroying the dog there and then, but his assistants urged him to "sew it up and give it a chance." He did so after removing many pieces of bone. The wound and the bone healed rapidly.

Major Pryer had referred to Unna's paste; he thought that its value was chiefly as a medium for the application of massage in the human subject. He had not employed it in dog surgery.

The Executive Council of the Imperial Agricultural Bureaux have elected Mr. N. L. Wright as Chairman in succession to Sir Charles Howell.

The Veterinary Record

January 2nd, 1937.

Specialisation in Veterinary Research

ASPIRING research workers in the natural sciences and in the various branches of medicine usually spend two, three or more years doing post-graduate study in some specialised laboratory before taking up a permanent research post. In this way they build upon the foundations of their particular training an intensity of knowledge in the particular field in which they hope to continue their careers of research. This interim period between basic training and official career is found to be necessary to all scientific investigators, whether they be specialising in pure or applied science, so that its importance to the veterinarian who hopes to make investigations in some field associated with one of the many basic sciences concerned with his training would appear to be equally great. It is perhaps for this reason that veterinary specialists in allied branches of knowledge are comparatively rare. Besides specialists in medicine and surgery the profession includes several in bacteriology, in virus work and a few in pathology, but the number specialising in animal nutrition, genetics, physiology, biochemistry, pharmacology or zoology is woefully few. Not only are such veterinary specialists too few to allow the profession to be adequately represented in non-veterinary institutes but they are insufficient for the true needs of the various veterinary laboratories. It must be acknowledged that a recently-qualified veterinary surgeon is no more suitable, without further training, for research than graduates of other sciences. The Agricultural Research Council and before them the Ministry of Agriculture, recognising this, have awarded annually a few research studentships. However, in their recent report the Agricultural Research Council state: "It has become evident during the four years that the studentship scheme has been in operation that it is difficult to attract a sufficient number of candidates with the necessary qualifications to provide an adequate body of good research workers in animal diseases." This difficulty, the Council

believes, results from "the competing needs of other fields of veterinary science and practice, which offer greater material advantages." While we agree with this view, we think that a further and important deterrent to the taking up of research as a career is the uncertainty that there will be suitable posts vacant after the long period of specialist training. This uncertainty will continue to remain as long as senior posts remain few and research institutes do not contain specialist departments of several workers each. While we think that the profession should collaborate to the full with other scientists, we feel that this uncertainty is bound to be intensified if zoologists and others are brought into veterinary laboratories in order to investigate problems which could often better be effected by a veterinarian who had specialised in that particular science.

Thus advertisements, such as the one we recently published from the Agricultural Research Council asking for a zoologist to undertake research into coccidiosis, are perhaps unfortunate at this juncture when efforts are being made to encourage graduates with good honours degrees to enter the veterinary profession. We would rather see the Council choosing its zoologists and then enabling them to become veterinary surgeons. Fortunately, the Council has inaugurated such a scheme and as they state in their second report, they envisage "an extension of the training scheme, whereby a limited number of men who have obtained high honours in pure science shall be awarded studentships to enable them to complete a course leading to a veterinary qualification." We wish the Council success with this scheme, but we hope it will have patience enough to retain open the positions which these specialists might be expected to fill. It must be remembered that it is only now that the recommendations of the 1921 Special Committee on Research into Animal Diseases are being implemented. It was then emphasised that "an essential part of any scheme for the improvement of veterinary research is the gradual creation of a cadre of research workers with those definite prospects of tenure, pay, promotion and superannuation benefits essential to secure their recruitment."

These prospects must be assured equally to all veterinary investigators, no matter in what particular branch of science they choose to specialise. In no other way can a satisfactory supply of recruits be expected to embark upon careers of highly specialised investigation.

CLINICAL COMMUNICATION

Louping-ill in the Horse

J. M. FLETCHER, M.R.C.V.S.
Lochgilphead, Argyll

Subject.—Two-year-old Clydesdale colt.

History.—Bred on farm. Had been grazing on hill pasture all summer in company with two other horses. On September 10th, 1936, it was seen to be stiff in gait and was brought in off the hill.

Examination.—First seen on September 11th, when the following symptoms were observed: Temperature 103° F.; pulse 66; marked nervous tension, with head thrust forward; fore-legs lifted abnormally high when made to walk, and stiffness in hind legs. Tetanus was suspected, but the third eyelid reflex was absent and there was no history of any wound. Appetite was quite good.

Treatment.—A fever draught was administered and the animal was kept quiet in a darkened loose-box.

September 12th.—Temperature 102·4°F.; pulse 60. Slight twitching of facial muscles and fore-legs lifted higher when horse made to walk.

A few ticks were observed about the muzzle and also on the ventral aspect of the body. These were removed.

Diagnosis.—Louping-ill.

September 13th.—Temperature 102·2°; appetite quite good.

Treatment.—Fifty c.c. Meninganol intravenously.

September 14th.—Temperature 101·6°. Marked improvement in gait and general condition.

Last seen on September 22nd when, to all appearances, the colt was fully recovered.

. . . . .

On submitting the above clinical report to the Editorial Committee of the N.V.M.A., a suggestion was made by them that a blood sample should be tested. Mr. I. A. Galloway, B.Sc., M.R.C.V.S., of the National Institute for Medical Research, on being approached, kindly undertook the testing of blood samples which were then submitted, one from the suspected case and one from an aged in-contact horse. Mr. Galloway's report on the testing of the blood samples is as follows:—

Laboratory Report

(I. A. Galloway, National Institute for Medical Research, London, N.W.3)

Mr. J. M. Fletcher, M.R.C.V.S., Lochgilphead, Argyll, Scotland, sent me a sample of serum taken from a horse which had shown a febrile disturbance, associated with symptoms suggestive of nervous involvement, two or three

months previously (see clinical report). The finding of some ticks on the animal and the resemblance of the clinical picture to that observed in sheep affected with louping-ill led him to the conclusion that the horse in question may have become infected with the virus of that disease. At the same time Mr. Fletcher sent a sample of serum taken from another horse which I understand had been grazing on the same pasture but which apparently had not itself shown any symptoms.

It was found that both the serum from the horse which had shown symptoms, as described by Mr. Fletcher, and that from the "contact" horse contained neutralising antibodies to the virus of louping-ill in a considerable titre; in fact, both sera contained neutralising antibodies in a titre equivalent to that of sera from sheep and monkeys convalescent from louping-ill or to that of the highest titre human serum which I have examined (*v. infra*), *i.e.*, they neutralised between 1,000 and 10,000 minimal infective doses of virus. "Control" horse sera included two samples of serum taken from horses in a district where no louping-ill is known to exist [*viz.*, Rhodes Farm of the Medical Research Council, Mill Hill—sera kindly collected by Mr. Balfour Jones], a tetanus antitoxin serum, an anti-pneumococcus serum, an anti-staphylococcus-toxin serum [these three standard sera, which contained no preservative, were kindly supplied by my colleague, Dr. P. Hartley] and an anti-influenza virus serum given to me by my colleague, Dr. C. H. Andrewes. None of these "control" horse sera showed any neutralising properties against the virus of louping-ill.

I have now tested a large number of sera from humans, monkeys and sheep against the louping-ill virus [see also *Proc. Roy. Soc. Med.*, 1933, **207**, 710.]

Human Sera.—The human sera tested were taken (1) from laboratory workers engaged on investigations into the disease, (2) from children and adults recovered from infection with poliomyelitis or different types of encephalitis and meningitis and (3) from adults and children not known to have been in close contact with the virus of louping-ill or to have suffered from any nervous disease. The only human sera containing neutralising antibodies against louping-ill virus were those obtained from laboratory workers who had been engaged on studies on the disease and who may or may not have shown symptoms of a non-fatal "influenza-like" disease. These results are in agreement with those of Rivers and Schwentker (1933).

Monkey Sera.—The monkey sera examined were taken (1) from monkeys recovered from infection with the virus of louping-ill [see Galloway, I. A., and Perdrau, J. R. (1935), in *J. Hyg.*, **35**, p. 344], (2) from monkeys recovered from infection with the virus of poliomyelitis, and (3) from uninoculated monkeys in the Institute stock of experimental animals. Only the sera from monkeys recovered from louping-ill have contained neutralising antibodies against the virus of that disease. [c.f. Schwentker, Rivers and Finkelstein (1933).]

Sheep Sera.—In the same way sera have been tested (1) from sheep recovered from or immunised against louping-ill [sera kindly supplied by Mr. W. S. Gordon, Ph.D., M.R.C.V.S., of the Moredun Research Institute, Gilmerton, Scotland], (2) from sheep in districts in which no louping-ill is known to occur. Only the sera from sheep immune to louping-ill have contained neutralising antibodies against the virus of that disease.

There is therefore no doubt as to the specificity of the virus neutralisation test in this disease and the presence of antibodies capable of neutralising the virus of louping-ill in the serum of an animal or human is strong evidence that the individual has been previously infected with that virus whether definite symptoms of disease have been observed or not. The results of the tests on the horse sera submitted for examination by Mr. Fletcher demonstrate that his assumption that at least one of the animals had been infected with louping-ill was correct. Mr. Fletcher has also informed me that in his district, where louping-ill among sheep is very common, he has frequently observed nervous symptoms in cattle very like those occurring in sheep and he has already stated [see *Vet. Rec.* (1936), **48**, 458] that he is of the opinion that cattle can also be infected with louping-ill.

The fact that horses, and possibly cattle, can become infected with the virus of louping-ill under natural conditions is of considerable interest and affords confirmation of the experimental findings of Alexander, R. A., and Neitz, W. O. (1935) [in *Onderstepoort J. Vet. Sci.*, **5**, 15]. These authors succeeded in infecting one horse with louping-ill virus by allowing *R. appendiculatus* nymphs, which had fed as larvae on a sheep during a louping-ill reaction, to feed on it. No nervous symptoms were observed, but the virus of louping-ill was recovered from the blood of the horse on the eighth day after the tick infestation and at the height of a febrile reaction. Samples of serum taken from the horse on the fifty-seventh and hundred-and-fortieth days contained neutralising antibodies to the virus. The authors showed also that cattle can be infected experimentally either by tick infestation or inoculation without necessarily showing any symptoms other than a febrile reaction.

A considerable amount of further work is necessary to determine the pathogenesis of the disease in bovines and equines, but there is sufficient evidence to show that these animals

ABSTRACTS

[**The Treatment of Limb Bone Fractures in Animals.** Gunn, R. M. C. (1936.) *Austral. Vet. J.* **12.** 4. 139-146. (3 figs., numerous refs.)]

In a comprehensive paper the author deals with the treatment of simple, compound, and complicated fractures, with especial reference to canines.

Most of the methods commonly employed are discussed, and "complications of the repair process," such as deformity, delayed union, lack of union and fibrous union receive due attention. The importance of early treatment and adequate reduction and immobilisation is stressed. In an attempt to overcome the difficulties met in the reduction of long bones in the dog, the author has devised a screwed mechanical fracture traction apparatus—illustrated.

C. F.

* * * * *

[**Epileptiform Fits of Ecto-parasitic Origin.** (Trans. title.) Henry, A., and Carpentier, G. (1936.) *Rec. Méd. vét.* **112.** 2. 65-79.]

The writers, in discussing epileptiform fits of ecto-parasitic origin, refer to the experimental work of Brown-Séquard, who found that in guinea-pigs, after lateral hemi-section of the spinal cord between the seventh or eighth dorsal and third lumbar vertebrae, or section of a sciatic nerve, in addition to the resulting paralysis there also developed an "epileptogenous zone." Cutaneous stimulation of this zone (by pinching) resulted in convulsions comparable to human epileptiform fits. Brown-Séquard also observed that the "epileptogenous zone" was invaded by lice, which bred there in numbers. Subsequent workers were unable to repeat Brown-Séquard's results regularly, but Pagniez *et al.* found that the convulsions were intimately connected with the presence of lice in large numbers in the "epileptogenous area"; in fact, removal of the lice caused the rapid and complete disappearance of the seizures. Furthermore, the syndrome was produced in normal guinea-pigs in which lice (*Gyropus ovalis*) were allowed to multiply by preventing scratching. It was thus shown that the nervous lesion, which had long been considered as an essential part in the production of the condition, is only operative in so far as it prevents scratching. Recent work by Martin supports the implication of parasites in the aetiology of this condition, but in his experiments the nervous lesion was caused by intracerebral injections, and the parasite concerned was *G. gracilis* instead of *G. ovalis*.

The writers quote as another example of epilepsy of ecto-parasitic origin the contagious epilepsy of pack hunting hounds shown by Nocard to be due to the multiplication of *Otodectes cynotis* at the bottom of the external auditory canal. A cure is obtained by appropriate anti-parasitic treatment. Henry and Carpentier record that they have seen similar symptoms in cats due to otacariasis, which disappeared after treatment. Furthermore, Railliet and Lucet have observed similar epileptiform symptoms in flocks of chickens which were very heavily infested with the larvae of *Trombidium*.

J. S.

* * * * *

[**The Value of Combined Eunarcon-Ether Narcosis.** Dybing, O. (1936.) *Arch. wiss. prakt. Tierheilk.* **70.** 5. 393-403. (11 tables, 1 fig., 6 refs.)]

Preliminary experiments were carried out with mice to determine the narcotic and lethal doses of eunarcon alone or combined with ether. It was found that when 3 per cent. ether was added to the inhaled air, 0·04 g. eunarcon intraperitoneally per kg. body weight was sufficient to produce satisfactory anaesthesia. These figures were used as the basis for experiments on ten dogs of various ages. In this case it appeared that an intravenous injection of 0·03 g. eunarcon per kg. body weight was sufficient to produce anaesthesia for about half-an-hour and 0·04 g. for about one hour without the addition of ether. This could be given in perfect safety if required to prolong anaesthesia, but arrest of the heart took place when the ether concentration in the blood reached about 200 mg. per cent.

J. A. N.

* * * * *

[**The Effects of Adrenalectomy and Hypophysectomy upon Experimental Diabetes in the Cat.** Long, C. N. H., and Lukens, F. D. W. (1936.) *Exp. Med.* **13.** 4. 465-490. (7 tables, 1 fig., 32 refs.)]

Cats from which both adrenal glands and the pancreas have been removed survive for about four weeks without the use of insulin, if daily injections of cortical extract are given. It was found that depancreatised cats but with the adrenals intact only survive four to five days, whereas there is a markedly decreased glucose, nitrogen and acetone excretion as well as an increased survival period when the adrenals

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can be infected with louping-ill and thus may serve as reservoirs of the virus. Apparently horses and cattle, like humans, may have an "*infection inapparente*" (Nicolle) as a result of infection with the virus and that such an infection has occurred can subsequently be demonstrated by testing the serum for neutralising antibodies.

were removed at the same time. Hypophysectomy similarly alters the effects produced by removal of the pancreas.

The authors conclude that in cats with the pancreas removed, hypophysectomy or adrenalectomy diminishes the production of glucose and acetone bodies but does not restore the normal utilisation of carbohydrate.

J. A. N.

* * * * *

[**Destruction of Carcases Contaminated with Pathogenic Organisms.** Quaedvlieg, M. E. J. A. A. (1936.) *Bull. Office Internat. des Epizooties*. **12**. 17; Flückiger, G. (1936.) *Ibid*. 59.]

I.—The article deals with the transport of animals' carcases and débris. Appropriate designs of enclosed vehicles are described. Such containers are constructed entirely of metal and a hoisting apparatus is fitted to the roof for on- and off-loading of whole carcases. In another design the carcase is placed upon a large metal tray mounted on wheels. This can be run up the inclined tail-board of a suitable lorry. It is stressed that hygienic transport arrangements are of no avail unless equally efficient organisation exists for the subsequent destruction of the carcase with salvage of by-products, and sterilisation of those by-products. The type of by-product to be prepared must obviously depend upon local requirements, but in any case the cost of production must be accurately balanced against the value of the ultimate product.

II.—Methods of destroying carcases are discussed. These include natural decomposition, burial, heat treatment, chemical treatment and a combination of heat and chemicals. The last-mentioned is the most useful method, the underlying principle being to heat the carcase sufficiently to destroy all infection without producing unnecessary chemical change in the tissues. By means of subsequent appropriate chemical treatment a variety of by-products are prepared. The methods of destruction employed in many countries are discussed briefly.

It is stressed that animal carcases should receive different treatment, depending on whether they constitute a source of danger or not. The decision whether or not a carcase is contaminated with dangerous pathogens should rest with qualified veterinarians.

E. J. P.

* * * * *

[**The Destruction of Ascaris Eggs and Oöcysts by Chemicals.** Enigk, K. (1936.) *Arch. wiss. prakt. Tierheilk*. **70**. 6. 439-448. (4 tables, 47 refs.)]

It has been shown that in order to destroy ascaris eggs and oöcysts quickly, the semi-permeability of the internal sheath must be destroyed. Since this is composed of lipoids, fat solvents should be of value. The experiments here described were carried out with *Toxascaris leonina* and *T. canis* eggs and with *Eimeria perforans* oöcysts.

Ether, chloroform, tetrachlorethylene, etc., were tried in turn, but it was found that carbon bisulphide was the most active. A 2 per cent. solution killed 100 per cent. of the round worm eggs in five minutes and 100 per cent. of the oöcysts in 20 seconds. The addition of phenol derivatives appeared to hasten its action.

J. A. N.

REPORT

Cyprus

REPORT OF THE VETERINARY SERVICE, 1935

The Chief Veterinary Officer (Mr. R. J. Roe, M.R.C.V.S., D.V.S.M.) was assisted by a veterinary officer, a veterinary inspector, ten stock inspectors and 59 other subordinates. The expenditure of the service for the year was £5,236.

The principal responsibilities of the service are to control infectious diseases of animals in the island, inspect animals prior to export, apply quarantine on imported animals, register and inspect dairies and cowsheds, supervise meat inspection in the principal towns, license breeding stallions, give professional attendance to Government-owned animals and advise native stock owners on husbandry and the general care and treatment of their animals. There are no private veterinary practitioners.

The livestock census made in 1934 was 4,169 horses, 8,079 mules, 51,301 donkeys, 921 camels, 36,618 cattle, 224,057 goats, 271,647 sheep and 24,900 pigs.

The gradual improvement in all classes of livestock which commenced in 1934 was well maintained and there was a satisfying reduction in the incidence of specific diseases. The most prevalent of these diseases were anthrax, sheep pox and parasitic gastro-enteritis. Both tuberculosis and bovine contagious abortion have been eradicated. Avian tuberculosis, however, is by no means rare, but there has been no evidence of it in pigs slaughtered in the abattoirs of the four principal towns. The incidence of anthrax has been greatly reduced by extensive annual vaccination. It is estimated that the mortality from this disease prior to the practice of vaccination cost over £20,000 a year, whereas during 1934 and 1935 the losses were less than £600 per annum. The vaccine is a single spore one. Three strains are used, one for cattle and sheep, a more attenuated one for goats, and a third for equines. The total number of animals vaccinated in 1935 was

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N.V.M.A. DIVISIONAL REPORT

Central Veterinary Society

The presentation of a paper by Professor J. G. Wright is an event to which members of the Central Veterinary Society, in common with those of other Divisions of the "National," have learned to look forward with eagerness, and this interest, augmented by the fact that Professor Wright this year occupies the position of President of the Society, was well evidenced by the attendance at the December meeting, held on the 3rd of the month at the Conway Hall, Red Lion Square, W.C.1.

The President, while not making a departure from precedent, varied the usual course of things by giving a specialised paper on professional work, his subject being "Some Observations on the Incidence, Causes, Diagnosis and Treatment of Bone Fractures in the Dog," upon which he invited discussion. The paper was well up to the high standard which Professor Wright has set for himself, and its value and interest were enhanced by the presentation of a large number of X-ray photographs and other illustrations thrown on to the screen by means of the epidiascope. This and a very useful discussion, admirably opened by Professor McCunn, enabled the Fellows to pass a most enjoyable evening, although no morbid specimens or cases of interest were exhibited and there was very little other business before the meeting.

The President (Professor J. G. Wright, F.R.C.V.S.) occupied the chair and there were also present: Captain L. S. Balls, Captain G. N. Bushman, Mr. W. Brown, Mr. H. E. Bywater (Hon. Secretary), Major W. Denington, Mr. C. Dickson, Captain H. S. A. Dunn, Miss C. M. Ford, Mr. C. Formston, Captain F. C. Gillard, Lieut.-Colonel H. Greenfield, Miss V. Hickman, Miss R. E. Holman, Mr. J. W. H. Holmes, Mr. H. D. Jones, Miss M. G. Jordan, Mr. Herbert King, Mr. H. C. P. King, Major H. Kirk, Lieut.-Colonel G. P. Knott, Major C. J. R. Lawrence, Captain G. Dunlop Martin, Mr. J. W. McIntosh, Mr. T. J. Maguire, Miss K. Morant, Brigadier-General H. S. Mosley, Mr. K. Ollerhead, Mr. C. W. Ottaway, Mr. C. H. K. Pearce, Major A. A. Pryer, Mr. Chas. Roberts, Miss K. M. Sanderson, Mr. G. W. Searles, Miss M. Sheppard, Mr. F. E. Somer, Mr. J. S. Steward, Captain R. J. Stow, Mr. P. M. Sutton, Captain W. K. Townson, Miss O. Uvarov and Dr. W. R. Wooldridge.

The following visitors were present: Mr. J. D. Blaxland, Miss W. K. Branker, Mr. H. Bell, Miss D. S. Craddock, Miss M. Delavoye, Mr. J. C. Greatorex, Mr. M. Kirk, Miss H. Neve, Miss L. H. Phillips, Mr. A. T. Phillipson, Miss S. Pollock, Miss G. Saunders, Miss H. Robertson, Miss M. Silverman, Miss Sparke, Miss T. K. Stephens, Miss R. Teveson and Mr. E. T. A. White.

At the outset of the proceedings, the President informed the Fellows that the minutes of the previous gathering of the Society, the Annual Dinner, had not yet been published in the *Veterinary Record*, and the meeting agreed to defer their consideration.

Correspondence.—The Secretary laid before the meeting a letter from Dr. L. Jordan apologising for his inability to be present and stating that he desired to resign from the Society as he found himself unable to attend its meetings as he was now the Hon. Secretary of the newly-formed Sussex Veterinary Society.

On the proposition of Captain Townson, seconded by Mr. H. C. P. King, Dr. Jordan's resignation was accepted with regret.

The meeting also considered correspondence which had been received from the Secretary of the N.V.M.A. with reference to precautions to be adopted in air raids with regard to gas warfare and bringing to the attention of the Society courses of lectures which were being arranged by the Branches of the British Medical Association situated in London. The meeting was informed that notices of one such course of lectures to be delivered by Dr. Hayden Guest at the behest of the Finchley Division of the B.M.A. had been sent to the "National," and that insertion of this notice had been made in the *Veterinary Record*.

Nominations for Fellowship.—The Secretary stated that Mr. J. W. Pritchard, of Brighton, who apologised for absence from the meeting, had nominated Mr. W. P. Blount, of Lewes, Chief Veterinary Officer for East Sussex, as a Fellow of the Society. This nomination was seconded by the Hon. Treasurer (Dr. J. McCunn).

The other nominations before the meeting were as follows: Professor J. B. Buxton, of the Royal Veterinary College (proposer, Professor G. H. Wooldridge; seconder, the President);

623,288, or practically the entire population. Sheep pox, which was of a virulent type in 1933 and 1934, assumed a mild form in 1935 and was dealt with successfully by quarantine measures. The losses caused by animal parasites, *viz.*, ticks, lice and various helminths, are far greater than those caused by all other forms of infectious diseases and a "drive" is now being made against them. Fowl cholera and fowl-pox appear to be the only serious diseases of poultry. Owing to a change in personnel, laboratory work was practically confined to routine duties.

W. K.

Mr. J. F. Mason, 7, Warescot Close, Brentwood (proposer, the Hon. Secretary; seconder, Mr. T. J. Maguire).

Elections to Fellowship.—The following gentlemen, having been nominated at a previous business meeting, were now unanimously elected as Fellows: Messrs. S. B. Vine, Sessions House, Maidstone; C. S. Haselden, Northwood, Middlesex; D. L. O'Brien, Ascot House, Rosedale Road, Epsom; C. W. Ottaway, Royal Veterinary College, and P. M. Sutton, Royal Veterinary College.

Presidential Address.—In the absence of any morbid specimens or cases of interest, the President now rose to give his Presidential Address, which, as stated above, took the form of a paper for discussion. In introducing his paper, the President said that he had decided, rightly or wrongly, to devote his address to a very important subject with which they were all called upon to deal to-day. It was his view that he could probably give the Society something more useful by so doing than he could by passing abstract opinions on such subjects as professional politics and so on. In view of the fact that that address was to take the form of a paper he proposed at the end to throw it open for discussion. Whilst that was contrary to custom, it was not without precedent in the Central Veterinary Society, for he recalled that some five years ago Major Kirk threw his Presidential Address open to discussion and it evoked quite a good one.

[Professor Wright's paper, and a report of the discussion and reply, are reproduced at the commencement of this issue of the *Veterinary Record.—Editor.*]

At the conclusion of the President's reply to the discussion of his highly appreciated paper, and there being no other business before the meeting, the proceedings closed with the according to him of a very hearty vote of thanks for his valuable contribution and for his conduct of the meeting.

H. E. Bywater, *Hon. Secretary.*

PREVENTION OF DEPOSIT IN COLD OLIVE OIL

In a letter to *Nature* (November 7th, 1936), W. Clayton, S. Back, R. I. Johnson, and J. F. Morse, record their observation that very small amounts of air-blown cacao-butter (iodine no. = 20), added to olive oil, will enable the oil to keep liquid and free from stearin deposit when it is stored at temperatures between 2° C. and 4° C. Untreated olive oil at these temperatures sets solid within twelve hours. The amount of blown cacao-butter needed to prevent the deposition of stearin varies from 0·1 to 0·5 per cent., depending on the technique of its oxidation and the length of time the olive oil is to be in cold storage. No other blown oil or fat has been found to serve so well, and other oils, such as arachis or cotton-seed, are not similarly protected. The inhibition effect in olive oil has persisted even after four years of storage at 2° C.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Jan. 4th.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, 4.30 p.m.

Jan. 4th.—N.V.M.A. Committee Meetings, 2, Verulam Buildings, Gray's Inn, W.C.1: Finance and General Purposes, 11.30 a.m.; Organising 2 p.m.; Appointments, 3 p.m.

Jan. 5th.—N.V.M.A. Council and Committee Meetings. Meeting of Council, Connaught Rooms, Great Queen Street, W.C.2, 2.30 p.m. Meetings of Committees, 2, Verulam Buildings, Gray's Inn, W.C.1: Parliamentary, 10 a.m.; Veterinary Officers' and Public Health, 11 a.m.; Joint Meeting of Veterinary Officers' and Public Health, and Parliamentary, 12 noon.

Jan. 7th.—Meeting of the Central Division, N.V.M.A., at the Conway Hall, W.C.1, 6.30 p.m.

Jan. 8th.—R.C.V.S. Council Meetings.

Jan. 15th.—V.V.B.F., Ladies' Guild: Dance, Princes Galleries, Piccadilly, W.

Jan. 15th.—Annual General Meeting of the Mid-West Division, N.V.M.A., at the Royal Hotel, College Green, Bristol, 3 p.m.

Jan. 16th.—Scottish Branch, N.V.M.A., General Meeting at Perth, 2 p.m.

Jan. 22nd.—Annual Meeting and Dinner, Royal Counties Division, N.V.M.A., Caversham Bridge Hotel, Reading, 6 p.m.

Feb. 26th.—Annual Dinner and Dance of the Yorkshire Division, N.V.M.A., at Leeds.

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PERSONAL

Marriage—Nisbet-Consitt. At St. Cuthbert's Church, Marton-in-Cleveland, on December 26th, James Nisbet, eldest son of Mr. and Mrs. James Nisbet, Edinburgh, to Rena Stratford Consitt, only daughter of Mr. and Mrs. Fred Consitt, Marton.

. . . . .

Mr. John Weir's Illness.—Much sympathy will be extended to Mr. John Weir, M.R.C.V.S., D.V.S.M., and his family, in the serious and protracted illness, now resulting in the loss of a limb, which followed from the infection of the bone of one leg that necessitated the initial operation which prevented his attendance at the Scarborough Congress. Mr. Weir (who succeeded Mr. Hugh Begg as Chief Veterinary Officer for Lanarkshire) was for nearly three months in the Victoria Infirmary, Glasgow, at that time and then was discharged. Last Sunday week, however, he had to return to the infirmary, where,

three days later, his right leg was amputated at the thigh. We are thankful to say that Mr. Weir is now making satisfactory progress.

* * * * *

R.C.V.S. OBITUARY

Chisholm, Albert Surtees, Bedlington, Northumberland, Captain R.A.V.C. (T.F.). Graduated London, July 14th, 1905; died December 23rd, 1936, aged 57 years.

* * * * *

THE LATE HENRY SUMNER, M.R.C.V.S.

An Appreciation

Henry Sumner has passed to the other life. "Whatsoever of strength the man had in him will lie written in the work he does." (*Carlyle*).

His passing will be felt deeply—by his many colleagues of the Lancashire V.M.A., whom for a quarter-of-a-century he faithfully represented at Red Lion Square—and by his numerous friends from a wider field, who knew him as member and President of the Council of the Royal College of Veterinary Surgeons. All recognised in the calm demeanour of his sturdy physique, in the generous expression of his open features, and in the steadiness of his deliberate speech, a patient negotiator, a courageous deliberator, a wise governor and, above all, a man of goodwill. Henry Sumner used his talents for the dignity, independence and integrity of his profession.

For many a former student of the Liverpool School the passing of Henry Sumner is the close of a chapter in the history of our profession's education. It is a measure of his greatness that as a private practitioner Henry Sumner not only foresaw the need for placing veterinary education within a university, but he fearlessly proclaimed his faith and secured the active collaboration of his fellow practitioners and the authorities of the University of Liverpool to ensure the success of the great undertaking. This was some 30 odd years ago, and to-day the Liverpool School is still our only centre of veterinary education which is an indivisible part of a university. From its foundation until the end of the Great War Henry Sumner, as Lecturer, served the school he had fathered.

Some day that chapter in our profession's education will be written around the personality of Henry Sumner and the Liverpool School. Possibly a few illustrations for the chapter may be a guide to the historian.

My fellow students of Liverpool will recall those days we trudged down to Vauxhall Road for Henry's lectures on stable management. If before our time we tidied up the dispensary, made up and labelled a few drenches or lotions, washed up some bottles, tried to dry our hands on the perpetually wet towel, cleaned our boots on the surgery duster—he himself was always tidy and no one would go unkempt into his spotlessly clean stables. To give cause for our mentor's disapproval was simply "not done."

As we stood beside one of Henry's cobs we listened and watched how the hand should be passed down the leg, how the mouth should be opened, how the foot should be examined. And, as we watched, our eyes wandered from the horse to the man, searching for the secret of that inherent power which gave him his "touch" and influence over his animals. As we tried to repeat whatever exercise he set us to perform we never made fools of ourselves, just because it was not in Henry's make-up ever to let his class think they had not done the job properly.

Then to the throbbing, clanging forge. The removal of a shoe; what a terrible effort it cost us, even to hold the leg of one of those powerful dockyard horses; and yet how easily Henry did it. The less adept among us wondered how he did it, and we stayed on after hours perspiring and practising until at a subsequent shoeing class we had won his approving smile. That smile was all we wanted, we then knew we were on the road for doing the task moderately well.

Again, there is a picture of Henry driving up to the school for his 12 o'clock lecture on medicine. While the august final-year men awaited him in the lecture room, we youngsters had the privilege of receiving Henry as he passed the reins to his groom. We surged around him, knowing that there was always a word or two for us. "Now boys, if two or three of you would like to help me with a case of ———, be at the surgery at 4.30 p.m." We knew what helping Henry really meant; getting in his way, spilling clean bandages on the floor, tripping over buckets, smearing blood on our faces, and generally sweating with excitement and importance. We were helping Henry; Henry said so.

I remember vividly the day he asked me "to help him" to ball a great dray horse. He showed me how to do it and slipped the ball into my hand; it was my first attempt. I bungled it badly and tore my knuckles. As I looked upon my hand Henry said, "Splendidly done, I saw it go down, but I must have those teeth rasped, they are a disgrace." I knew the teeth were all right, but that was his way with his boys. He gave his students what they required—inspiration, guidance and opportunity.

My final picture may be familiar to a more limited circle of his friends. In recent years my wife never felt our visit to her old home was complete without a talk with Henry after he had returned from the day's work. He invariably greeted my wife as the little daughter of his old friend and vicar; then we would talk of old times, of the parish, of the church; until Grandpa would lead us on tip-toe upstairs to see his greatest treasure—his beloved grandson. As I recall my last impression of Henry bending in the dim light over his sleeping grandson, I feel assured that a man capable of so much love will for long live with us. For his strength was his love.

Tom Hare.

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N.V.M.A. MOTOR INSURANCE SCHEME

Warning to Members

In the Notices column of this issue will be found an important announcement warning members of the Association in respect of the receipt of unauthorised circular letters offering, through other channels than the Managers, on behalf of the Association, of the approved "N.V.M.A." motor insurance scheme, to arrange such assurances at the same special rates of premium as are quoted under that scheme. A disclaimer is made of all responsibility in connection with any difficulty arising from participation in schemes of motor insurance other than that sponsored by the Association.

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MILK MARKETING BOARD INQUIRY

Evidence on the cost of maintaining tuberculin tested herds was given by Mr. James Mackintosh, of the National Institute for Research in Dairying, at the inquiry in London into the question whether sales of milk from these herds should be brought within the scope of the Milk Marketing Scheme. Mr. Mackintosh said that heavy losses were incurred in the disposal of cows which reacted to the tuberculin test.

If the producers of milk from tuberculin tested cows were brought into the Milk Scheme under the conditions proposed by the Board, the increase in the production of such milk would be checked, and there might even be a reduction in the number of tuberculin tested herds.

Mr. R. T. Smith, who manages Lord Rayleigh's farms in Essex, said the extra cost of producing "T.T." as against "accredited" milk was 3·125d. per gallon. He was afraid that the extra expense to which the "T.T." producer would be put under the new Milk (Special Designations) Order would offset any saving.

At a later session, Mr. W. P. Blount, F.R.C.V.S., chief veterinary officer of the East Sussex County Council, said that during tests which he and his assistants had made in the past year they had taken 486 cows suffering from tuberculosis. Of these cows 91 had tuberculosis of the udder and were giving tuberculous milk, and of the 91, 67 were taken from accredited herds. None of these cows came from tuberculin-tested herds.

Mr. John Currie, Totnes, said he was anxious that the Board should not do anything which would retard the production of tuberculin-tested milk. He was afraid that might take place because of the democratic system of voting involved in the milk marketing scheme. There were roughly 140,000 ordinary producers against about 2,000 graded producers, and, therefore, the interest of the great majority was not in graded milk production.

The inquiry was adjourned provisionally until January 11th.

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LEGAL NOTE

Sheep Scab: Heavy Fine for Delayed Notification.—In imposing a fine of £25 on a Denham farmer for not giving notice, with practicable speed, of an outbreak of sheep scab, the Chairman of the West Hartlepool Bench said that the magistrates regarded the case as an exceedingly serious one. Evidence was given that the police, visiting the farm with Mr. E. R. Callender, M.R.C.V.S., veterinary inspector for the county, saw 49 sheep in one pen, which obviously had sheep scab, while Mr. Callender formed the opinion that ten other sheep in an enclosed shed, which were being hand fed and hand dressed, had been suffering from the disease for at least six weeks.

Mr. Callender said that the defendant should have become aware that there was something wrong with his sheep three or four months earlier. The disease had been prevalent in that area for two years. There had been ten outbreaks in the last twelve months.

Farmers Warned

Captain H. B. Allen, M.R.C.V.S., D.V.S.M., chief veterinary officer for the county, said that last winter they had a tremendous number of outbreaks of sheep scab. They decided to refresh the minds of the farmers about their responsibility of reporting cases and displayed posters throughout the county. A number of prosecutions were also given publicity. Farmers should be well aware of the legal requirements.

Defendant stated that he had not heard of a case of sheep scab in the area and he had never before seen an affected animal though he had been farming all his life. He thought at first that his sheep had maggots, but later his suspicions were aroused and he communicated with the police. The ten enclosed sheep were being hand fed in readiness for lambing and not because they were ailing. A large number of lambs from the flock were sold in October, and were in perfectly good condition.

Defendant's solicitor stated that although it was not disputed that there was an outbreak of sheep scab on the farm, it was submitted that the farmer reported it to the police as soon as he suspected sheep scab.

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H.M. STATIONERY OFFICE PUBLICATIONS

The undermentioned have been published recently. Copies can be purchased through any bookseller, or indirectly from H.M. Stationery Office, at the following addresses: London: Adastral House, Kingsway, W.C.2, and 28, Abingdon Street, S.W.1; Cardiff: 1, St. Andrew's Crescent; Manchester: York Street; Edinburgh: 120, George Street.

	Price Net. s.	d.	*Post Free.* s.	d.
Imperial Agricultural Bureaux:				
Agricultural Research Workers in the British Empire, List of, 1936. (88-602-0-36)	5	0	5	4
House of Commons Bills:				
5. Horse Breeding	0	2	0	2½
War Office:				
Veterinary Services, Army Regulations for, 1932. Amendments No. 6, November, 1936. (57-9999).	0	1	0	1½
Home Office:				
Air Raid Precautions Department. Circular 701, 520/33. Anti-Gas Training. Gas Vans and Gas Chambers. December 17th, 1936. (34-9999). ...	0	2	0	2½
Department of Health for Scotland:				
Milk, Special Designations Order (Scotland), 1936. Report Card for Inspection of Dairy Farms (49-9999).	0	1	0	1½

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ARMY VETERINARY SERVICE

Colonel C. A. Murray, who is at present in Ireland on leave *ex* India, will proceed to London on January 10th, 1937, for the purpose of assuming duty as Assistant Director of Veterinary Services, Eastern Command.

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ANTI-GAS TRAINING

Scheme of Medical Instruction

The following brief outline of the scheme of anti-gas instruction for medical, dental and veterinary practitioners, students, and nurses (which, as has been announced in the Press, has recently been inaugurated), is issued to local authorities by the Air Raid Precautions Department of the Home Office:—

The importance of securing that practising members of the medical profession are conversant with anti-gas measures is obvious, not only from the point of view of ensuring skilled treatment of gas casualties, but also for its moral effect in enabling members of the public to look upon their medical advisers as qualified to assist and advise in case of need. The Secretary of State attaches the greatest importance to the provision of facilities for medical practitioners to acquire the requisite knowledge of methods of treatment, and protection against gas.

Accordingly, for England and Wales, 14 qualified medical practitioners have been or are about to be appointed by the Secretary of State, and trained at the Civilian Anti-Gas School, to become medical instructors for the sole purpose of giving instruction to the medical, dental, veterinary and nursing professions. These instructors will be stationed at the towns listed [in the Appendix to the circular] and will give courses of instruction to members of these professions in those towns and in the surrounding area. They will work directly under this Department and their services will be available without charge.

By arrangement with the British Medical Association, the branches of that Association will be used for organising local courses for private practitioners (not limited to members of the Association). The arrangements with regard to instruction at Medical Schools (where not given by a member of the staff) are being made with the Deans, and the College of Nursing is collaborating with regard to the training of nurses.

The scheme for medical training has thus been devised without imposing any burden on local authorities either financially or in the matter of organisation. The Secretary of State is satisfied that the arrangements which have been made will best suit the convenience of the practitioners whom it is desired to reach, and he is pleased to be able to announce that the response which has already been evoked is such as to ensure the success of the scheme.

The instructors and the necessary equipment are being provided by this Department without charge, and the only cost which will fall to be met locally will be the cost (if any) of the accommodation for the local course, and minor office expenses of organisation. This local cost should not properly fall on the funds of a voluntary organisation such as the British Medical Association, and it is therefore intended that a small enrolment fee should be charged to those who attend the courses. This fee can never be large unless a substantial sum has to be paid for accommodation, and, to, keep it as low as possible, the Secretary of State would be grateful if, in cases where free accommodation is not available in a hospital or similar premises, the local authority in the area in question could assist in providing accommodation in some public building.

It is suggested that your Council's Medical Officer of Health should keep in touch with the local branch or branches of the British Medical Association in your area, and so be able to keep acquainted with the progress of medical training in the locality, as well as to give any assistance which it may be in his power to afford.

* * * * *

DEATH OF A FAMOUS ZOO TIGER

Fury, a Malayan tiger, died last week from senile decay after having been a favourite with visitors to the gardens for nearly 15 years.

Fury was presented to the Zoological Society by Mr. W. H. Jones in 1922, and she was fully grown at that time. Her age at death was estimated at from 21 to 23 years, and she held the record among tigers for longevity at the Zoo. She arrived with the reputation of being a man-eater, having, it was said, killed three native cow-watchers before she was captured. Up to the time of her death she remained fierce and unapproachable.

"There is a local belief," says the *Times*, "that man-eating tigers are usually darker in colour than the average for the species—a belief which is supported by Fury's skin. The ground colour underlying the black stripes is a much darker chestnut than is usual either in the Bengal or Malayan races. It does not appear that this dark coat is acquired only by aged tigers which might be supposed to resort to human food through inability to catch more active prey. Fury's colour has not noticeably darkened since her arrival.

"At the subsequent *post-mortem* examination the tiger was found to be suffering from cirrhosis of the liver, a disease to which the carnivores are much more prone in advancing age than are mixed and vegetable feeders."

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The views expressed in letters addressed to the Editor represent the personal view of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

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VETERINARY RESEARCH

To the Editor of the Veterinary Record

Sir,—I would ask for space in which to comment upon your leading articles in the issues of November 28th and December 5th. In the course of my comments I shall have to criticise a little. Let me say, at the outset, that my letter is not written in any spirit of criticism. My object is similar to yours, to endeavour to assist in bringing about a better state of affairs than exists at present in connection with the veterinary profession. Since I returned, permanently, to England, I have endeavoured to keep myself informed of the general situation, and, during the past year, as a member of the Agricultural Research Council, I have come very intimately into contact with one branch of veterinary effort. What I have to say, however, is not on behalf of that Council or any other body. I write purely as an individual but in the light of such information as I have gathered from sources with which I am connected. I cannot help but feel that the writer of your editorial on grass sickness either is unaware of, or has forgotten, the functions of the Agricultural Research Council and has not read the recently published report. My reasons for that statement may not be appreciated by many of your readers for it is doubtful if any detailed account of the Council's activities reaches them. I wish this was not so. I feel, therefore, that a few details will help them to understand the position. The Council is charged with the duty of initiating, and giving scientific supervision to, research in connection with all branches of agriculture. For this purpose, funds are allocated by Government. In addition, the Council examines, and comments upon, research carried out at all institutions in the United Kingdom, provided it is financed from the public revenue. The necessary yearly authority for expenditure is not given by those concerned until the progress reports and future programmes have been studied and approved by the Council. The examination of certain special fields of research is carried out, in the first place, by technical committees, the members of which are peculiarly experienced in the various problems. Upon those dealing with animal disease there are 21 veterinarians. The detailed reports of these committees are examined by the appropriate standing committees upon which others

than members of the Council serve. Finally, and in close consultation with officers of the Agricultural Departments, the whole are reviewed by the Council. Now a very considerable amount of veterinary research is financed by public funds, and, therefore, the Council has been fully informed of it either from its inception or since the Council was formed. Thus, the committees which reviewed the grass sickness investigation were conversant with the work in progress and examined it in the ordinary course of their duty, but, on this occasion, they had the benefit of the presence of the investigators themselves. Thus, also, there is no need for the Council to enquire, as is suggested in your article, into the conduct of other veterinary research. I feel that your readers would not get quite the correct impression from your leader and I am quite sure that you, Sir, would not wish that they should be under any misapprehension. I have no authority to speak for the Council, but I have no hesitation in saying that the members are fully aware of the difficulties which face those engaged in veterinary research and are anxious to do, and are doing, what they can to bring about a change.

Turning now to the second leading article, that of December 5th, with much that you say I am in entire agreement. All is not well with our research service. Many of our workers are labouring under conditions which are difficult and which must be changed. There is no necessity for me to detail them; they are known. They are operating against advancement and against the recruiting of those who would assist the advance. There appears to be a feeling that the conditions are thought by some to apply to the workers themselves. You quote remarks made by Major Dalling and Sir Merrik Burrell which appear to show that statements made by the latter have been taken to infer that, as a body, the research workers share in a condition described as a "national disgrace." I know Major Dalling as an able and valued worker who is heart and soul in his endeavour. I have been, for the last twelve months, in frequent association with Sir Merrik Burrell. I would no more question any statement of the former than I would believe that the latter has other than an urgent desire to assist the veterinary profession or that the inference which appears to have been drawn from what he said is a correct one. I could not help feeling, upon reading your article, that there was an impression abroad that research workers, and those who wish to assist them, are upon the defensive and that it is necessary to prove that they are able and valued workers. Now, Sir, there is no need for such an attitude on the part of any person. Veterinary research workers require no defence. The record of their efforts is open to the study of all. Under difficult conditions, often without adequate encouragement, financial or otherwise, they have carried on and produced results with which they, and those concerned with them, have every right to be entirely satisfied. They are responsible for a great advance and for recognition in quarters where, hitherto, it had been withheld. During the past twelve months I have heard opinions expressed, and seen actions taken, which prove that veterinarians have allies where such have not been expected.

With much that Major Dalling said at the meeting of the Central Veterinary Society, I agree. On two points I join issue with him. I do not agree that the veterinary surgeon is the only person who is in a position to carry out work in connection with the investigation of diseases of animals. Major Dalling welcomes assistance from, and co-operation with, others. I believe that others should be an integral part of the team. I suggest there is a fundamental difference. There is no need to detail conditions in which the nutrition expert, the entomologist, the chemist, the neurologist, and others, must play this part. Neither the veterinary nor any other single profession can supply men with such varied training. Nor do I agree that our method of solving our difficulties is to tempt men to research work by considerably increasing the value of available studentships. Those awarded on the advice of the Agricultural Research Council are of a yearly value of £300. Surely that is sufficient to enable a man to make himself more suitable for the work of his choice! There are many who would have welcomed comparable opportunity in the past. I suggest, Sir that the man who can only be obtained by a financial bait is not the one who will carry on the work in an adequate manner. If a man can see a future in which his efforts will be adequately rewarded, financially and by increased opportunity and appreciation, he will not worry too much about what happens during his training provided that he can live in a manner which will enable him to take advantage of that training. Such a future is by no means visible at present. It is towards ensuring such a future that every legitimate effort must be maintained.

Yours faithfully,

J. Smith.

Kenley,
Surrey.

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FORWARD IN 1937

To the Editor of the Veterinary Record

Sir,—It is not often that I can contemplate with any degree of satisfaction the efforts of the Editorial Committee on the political aspect, but the *Record* of December 19th, 1936, gave me a fair amount of gratification and comfort. I and many others for some five or six years have tried to show the trend of events, and our fears for the future of our profession were admirably tackled and consolidated by the Special Committee, which, after prolonged labour, brought forth the "N.V.M.A. Scheme"—which, to my mind, will prove to be the Magna Charta of our profession.

Slowly but surely the reports of commissions, committees and latterly the speech of Sir Merrik Burrell, so inimical not only to the general practitioner but to the whole of the profession, have hardened the "hearts and minds" of veterinary politicians into the conviction that the veterinarian and he alone is qualified to promote, administer and carry out all matters relating to animal health.

Centralisation is becoming an increasing necessity to the cosmos of contemporary life. Decentralisation has led to chaos. The pendulum, to those who have eyes to see, is swinging towards centralisation. Let us assert our inalienable right to perform the duties which our education and training give us the competence to do.

I look forward to 1937 as the "year of grace" for our profession. It is pregnant with possibilities.

"May the peace of the morning befriend you, the happiness of the day and the light of the sunset."

Yours faithfully,

J. W. Hall Masheter.

Ruddle House,
Newnham-on-Severn.
December 23rd, 1936.